II-1 DATA BASE

This section identifies sources of waste generation within the county, total quantity of solid waste generated to be disposed, and sources of the information.

The following database is derived from the listed sources:

- Southeast Michigan Council of Governments 2020 Regional Development Forecast
- Oakland County Planning Department
- Office of the Oakland County Executive
- Solid waste authorities (SOCRRA and RRRASOC)
- Interviews with municipal program operations and private sector service providers

THE PLANNING AREA

The solid waste management plan update planning area includes all of Oakland County with the exception of that area lying within the city of Northville. As provided for by Act 451, Northville has chosen to be included within the Wayne County solid waste planning effort. This local option has received the approval of the Board of Commissioners of each county (see Appendix E for copies of resolutions to that effect). As noted in the material following, the waste stream generated within the planning area remains at 99.80% of that generated within the entire county.

Residential Waste Stream

Residential solid waste data was calculated by applying a waste generation rate (pounds per person per day) to population totals for each municipality. The waste generation rate was modified for single and multi-family dwelling units, and for rural and urban land use characteristics with a final average of 3.77 pounds per person. These generation calculations are then presented in Table II-1 following, as required by the Plan Format. A more detailed description of how estimates were calculated may be found in Attachment F.

Table II-1 Residential Waste Generation by Municipality (tons per year)

Municipalities	*1998*	*Municipalities*	*1998*
Addison Township	3,508	Madison Heights	21,645
Auburn Hills	14,023	Milford	4,654
Berkley	12,545	Milford Township	5,344
Beverly Hills	7,632	Novi	31,306
Bingham Farms	657	Oak Park	22,550
Birmingham	14,323	Oakland Township	6,774
Bloomfield Hills	2,697	Orchard Lake	1,453
Bloomfield Township	31,116	Orion Township	16,600
Brandon Township	7,756	Ortonville	1,161
Clarkston	672	Oxford	2,362
Clawson	9,589	Oxford Township	6,515
Commerce Township	20,717	Pleasant Ridge	2,081
Farmington	6,877	Pontiac	47,735
Farmington Hills	54,849	Rochester	5,420
Ferndale	18,287	Rochester Hills	48,337
Franklin	1,588	Rose Township	3,807
Groveland Township	3,489	Royal Oak	45,654
Hazel Park	14,487	Royal Oak Township	3,128
Highland Township	11,914	South Lyon	6,731
Holly	4,121	Southfield	49,852
Holly Township	2,310	Springfield Township	8,348
Huntington Woods	4,858	Sylvan Lake	1,416
Independence Township	18,677	Troy	58,112
Keego Harbor	2,029	Walled Lake	4,409
Lake Angelus	208	Waterford Township	49,724
Lake Orion	2,113	West Bloomfield Township	42,081
Lathrup Village	3,165	White Lake Township	16,903
Leonard	241	Wixom	8,329
Lyon Township	6,201	Wolverine Lake	3,435
		County Total Residential Waste	**806,555**

Commercial/Industrial Waste Generation

Commercial waste generation was determined by multiplying estimated pounds per employee per day for specific Standard Industrial Codes (SIC) by the actual employment numbers in Oakland County. Pounds per employee per day figures were generated by data drawn from actual waste assessments and surveys of commercial and industrial establishments in Michigan and Oakland County. Employment numbers were obtained for the year 1998 from the SEMCOG 2020 Regional Development Forecast. The resulting waste generation calculations are presented below for commercial and industrial SIC (standard industrial classifications).

Table II-2 Commercial Waste Generation

SIC	SIC Description	## of employees (1998)[1]	lbs/ empl/ day[2]	Tons/ year (1998)
0700-1999	Ag/Mining/Construction	8,678	5	5,641
4000-4999	Transportation/Public Utilities	29,393	5.8	22,162
5000-5199	Wholesale Trade	50,811	12	79,265
5200-5999	Retail Trade	142,288	9.5	236,584
6000-6999	Finance, Insurance, Real Estate	122,754	6	95,748
7000-7999	Services	335,307	6.6	287,721
99--	Public Administration	11,540	5.5	8,251
	TOTAL	700,771	5.75	735,372

Source: SEMCOG Regional Development Forecast 2020

[1]Employment numbers modified to reflect actual employment in office administration

[2] Assumes 260 days of operation per year except for Retail Trade category at 350 days/yr; source of data are studies conducted by Resource Recycling Systems Inc.

Table II-3 Industrial Waste Generation

SIC	SIC Description	## of employees (1998)*	lbs/ empl/ day	Tons/ year (1998)
2000-3999	Manufacturing	80,084	6.89	100,699

** Employment numbers modified to reflect actual employment in office administration*

Special Waste Streams

Sewage sludge is generated by a number of municipal and privately-operated wastewater treatment programs in Oakland County. At this time, most of this waste is disposed through the City of Detroit Wastewater Treatment Facility where it is incinerated and the ash disposed in landfills. Other wastewater treatment programs in Oakland County use land application methods for disposal. No other special waste streams have been identified at this time, however, a portion of the overall waste stream called Industrial Special Wastes (ISW) and Construction and Demolition Debris (CDD) are accounted for in Table II-4 following. CDD wastes are distributed on a pounds per capita basis. This does not, or is not intended to accurately reflect the source of CDD wastes. These wastes will be produced where construction and demolition activities are now occurring and the source will change dramatically from time-to-time. Additionally, a similar approach is taken in the distribution of ISW wastes.

Table II-4 Industrial Special Wastes/Construction and Demolition Debris

Description	Multiplier	Tons/ year (1998)
Industrial Special Waste	9.83 pds per manuf. employee per day	143,668
Construction & Demolition Debris	0.7 lbs per capita per day	165,035

Major Waste Generators

Oakland County continues to experience growth in the business sector. Overall, the county does not anticipate major problems associated with managing the commercial and industrial solid waste generated within its borders. Table II-5 provides a list of major business and industrial waste generators in the County.

Table II-5 Major Waste Generators in Oakland County

Generator	Location	Type	## empl
General Motors	Various	Automotive manufacturer	26,005
Chrysler Corp.	Various	Automotive manufacturer	20,894
EDS Corp.	Troy	Global information services	9,900
William Beaumont Hospital	Royal Oak	Hospital	7,931
Kmart Corp	Troy	Retail HQ	6,000
Ameritech Michigan	Various	Communications	5,000
Providence Hosp & Med Cen	Southfield	Hospital/Medical Centers	4,024
Mercy Health Services	Farmington Hills	Hospital/Medical Centers	3,916
Oakland Co. Govt	Pontiac	County government	3,713
Blue Cross and Blue Shield	Various	Insurance	3,545
Ford Motor Co.	Various	Automotive Manufacturer	3,530
Progressive Tool & Industries	Southfield	Manufacturer	3,480
Compuware Corp	Farmington Hills	Information technology	2,482
Bank One	Various	Financial services	2,407
Henry Ford Health System	Various	Health care	2,142

TOTAL WASTE GENERATION

Act 451 non-hazardous wastes are comprised of three principal components - municipal solid wastes (MSW), construction and demolition debris (CDD) and industrial special wastes (ISW). The MSW component is comprised of solid wastes generated by the single family residential, multi-family residential, commercial and industrial land uses. This primary component (approximately 84% of Oakland County's total solid waste stream) must be disposed in Type II landfill facilities. The industrial component of MSW (generally comprised of industrial housekeeping wastes such as packaging, cafeteria and washroom wastes, and office wastes) is exclusive of industrial special wastes (ISW), such as foundry sands. ISW is comprised of those wastes of such a character that they do not have to be disposed of in Type II landfills but may be disposed of in lessor standard Type III facilities because of their relatively benign nature. Construction and demolition debris (CDD) may also be disposed of in Type III landfill facilities.

Centers of waste generation and detail on future waste generation are described in Attachment F.

Waste generation is shown in Tables II-6 and II-7 below. Waste generation was projected into the future based on projected population growth patterns. Table II-6 shows projections in tons per year; while Table II-7 shows projections in gateyards per year.

Table II-6 Total Waste Generated (Tons per year)

Sector	1998 Tons Generated	2003 Tons Generated	2008 Tons Generated
Residential	806,555	834,501	862,102
Commercial	735,372	799,199	841,735
Industrial	100,699	92,497	87,153
MSW Sub-total	*1,642,627*	*1,726,196*	*1,790,991*
Construction/Demolition	165,035	173,055	179,511
Industrial Special Waste	143,668	131,966	124,342
Total Annual Tons	**1,951,329**	**2,031,217**	**2,094,844**

Table II-7: Total Waste Generated (Gateyards per year)

Sector	1998 Gateyards Generated	2003 Gateyards Generated	2008 Gateyards Generated
Residential	2,419,665	2,503,503	2,586,305
Commercial	2,206,117	2,397,596	2,525,206
Industrial	302,097	277,490	261,460
MSW Sub-total	*4,927,879*	*5,178,589*	*5,372,971*
Construction/Demolition	330,069	346,110	359,022
Industrial Special Waste	164,198	150,823	142,111
Total Annual Cubic Yards	**5,422,147**	**5,675,522**	**5,874,104**

** cubic yards were converted from tons using several conversion factors; 3 gateyards per ton for the municipal waste stream; 2 gateyards per ton for CDD and 1.14 gateyard per ton for ISW*

TOTAL WASTE DISPOSAL

Total waste generation for 1998 was projected and compared to actual 1998 landfill disposal data for Oakland County waste plus reported recovery (recycling and composting) totals. In 1998, it is estimated that a considerable amount of the residential waste stream (24.35%) is currently diverted from disposal in landfills through recycling (7.65%) and yard clipping (16.7%) programs. Additionally, it is estimated that 15% of the commercial municipal solid waste stream is recovered (13% through recycling and 2% through yard clipping composting), and that 15% of the industrial municipal solid waste, construction and demolition debris and industrial special waste is recovered through recycling efforts. The final diversion rate currently being achieved, net after allowance for process residues which result from the recycling and composting operations, is calculated to be 18.12%. Recovery (recycling and composting) was projected for the future, and subtracted from total generation projections for the 2003 and 2008 planning years in order to obtain disposal estimates. Future recovery was based on expected growth for existing programs and achievement of stated County recovery goals, resulting in total disposed projections contained in Tables II-8, II-9, and II-10 below.

A percentage of estimated recovery (composting and recycling) is documented, particularly for the residential portion of the waste stream. This is due to highly successful programs at RRRASOC and SOCRRA. Recovery from the remaining residential stream plus commercial, industrial and special wastes are less well documented and must be estimated based on comparisons to other similar regions. Finally, in comparing generation estimates to actual reported disposed data, it should be noted that the Michigan DEQ Annual Landfill Report indicates that 4,157,815 cubic yards of Oakland County waste were disposed in 1998, compared to an estimated generation rate of 5,422,147 cubic yards(gateyards), indicating a difference of 1,264,332 cubic yards which can assumed to be materials diverted to recycling and composting. Translated to tonnage, this amount is approximately 350,000 tons of material either recycled, composted or reduced through volume reduction techniques (assumes conversion rate of approximately 600 pounds per cubic yard, and allowing for deduction of process residues).

Disposal values are displayed three ways, in Tables II-8 through II-10 below. The first is based on tons per year, as calculated by waste generation and recovery modeling described above. The second table shows "gateyards", reflecting the volume as delivered at the landfill gate. This assumes 666 pounds per cubic yard for municipal solid waste (or three gateyards per ton), 1000 pounds/cubic yard for CDD and 1,750 pounds/cubic yard for ISW. The third table shows "bankyards", reflecting the actual space waste takes up in a landfill. The bankyard conversion factor is two gateyards per bankyard for municipal solid waste and one gateyard per bankyard for Type III waste.

Table II-8: Total Disposal (tons per year)

Sector	1998 Tons Disposed	2003 Tons Disposed	2008 Tons Disposed
Residential	615,517	616,152	607,539
Commercial	630,097	639,231	607,682
Industrial	86,349	74,571	63,308
MSW Sub-total	*1,331,963*	*1,329,954*	*1,278,529*
Construction/Demolition	142,136	139,439	130,527
Industrial Special Waste	123,734	106,331	90,412
Total Annual Tons	**1,597,833**	**1,575,724**	**1,499,468**

Table II-9: Total Disposal (gateyards per year)

Sector	1998 CY Disposed	2003 CY Disposed	2008 CY Disposed
Residential	1,846,550	1,848,456	1,822,616
Commercial	1,890,290	1,917,693	1,823,047
Industrial	259,048	223,421	190,119
MSW Sub-total	*3,995,888*	*3,989,571*	*3,835,782*
Construction/Demolition	284,272	278,540	260,864
Industrial Special Waste	141,410	121,665	103,498
Total Annual Cubic Yards	**4,421,571**	**4,389,776**	**4,200,145**

Table II-10: Total Disposal (landfill bankyards per year)

Sector	1998 BY Disposed	2003 BY Disposed	2008 BY Disposed
Residential	929,275	924,228	911,308
Commercial	945,145	958,846	911,524
Industrial	129,524	111,711	95,059
MSW Sub-total	*1,997,944*	*1,994,785*	*1,917,891*
Construction/Demolition	142,136	139,270	130,432
Industrial Special Waste	141,410	121,665	103,498
Total Annual Cubic Yards	**2,281,491**	**2,255,720**	**2,151,822**

II-2 SOLID WASTE DISPOSAL AREAS

The following includes an inventory and descriptions of currently existing solid waste disposal areas within the County or to be utilized by the County to meet its disposal needs for the planning period.

Oakland County's solid waste is currently handled, processed and disposed at a number of Act 451 designated facilities as described below. No current flow control arrangements wherein wastes or source separated materials are required to be delivered to specific facilities exist other than those contained within voluntary contractual arrangements by municipalities.

Transfer Stations:

- Allied Waste Industries, Eight Mile Road, City of Southfield
- SOCRRA transfer station, Coolidge Highway, City of Troy
- SOCRRA transfer station, John R Road, City of Madison Heights*

** The SOCRRA transfer station site on John R in Madison Heights is actually designated as an all-purpose "Disposal Area" site except that it may not be used for a sanitary landfill, an incinerator or a waste-to-energy plant.*

Waste Processing Plants*:

- RRRASOC MRF, Eight Mile Road, City of Southfield
- SOCRRA MRF Coolidge Highway, City of Troy

**The RRRASOC and SOCRRA facilities are designated but not currently licensed or operated as waste processing plants. Both facilities process source separated recyclables at these locations.*

Type II Landfills (Oakland County):

- Collier Road, Collier Road, City of Pontiac
- Eagle Valley, Silverbell Road, Orion Township
- Oakland Heights, Brown Road, City of Auburn Hills
- SOCRRA, School Road, City of Rochester Hills

Type II Landfills (non-Oakland County):

- Citizens Disposal, Mundy Township, Genesee County
- Brent Run, Montrose Township, Genesee County
- Pioneer Rock, Burnside Township, Lapeer County
- Arbor Hills, Salem Township, Washtenaw County
- Sauk Trail Hills, Canton Township, Wayne County
- Woodland Meadows, Van Buren Township, Wayne County
- Carleton Farms, Salem Township, Wayne County
- Riverview, City of Riverview, Wayne County
- Ford Motor Allen Park, City of Allen Park, Wayne County
- Pine Tree Acres, Lenox Township, Macomb County
- Hastings Sanitary, Hastings Township, Barry County
- McGill Road, Blackman Township, Jackson County
- Venice Park, Venice Township, Shiawassee County
- Adrian Landfill, Palmyra Township, Lenawee County

Type III Landfills:

- Wayne Disposal - Rockwood landfill, Berlin Township, Monroe County
- Sibley Quarry, Monguagon Township, Wayne County
- Salzburg Road, Midland Township, Midland County

Incinerators and Waste-to-Energy (WTE) Plants:

- Greater Detroit Resource Recovery Authority, City of Detroit, Wayne County

Other sites are currently designated in the previous Oakland County solid waste management plan but are not listed above since these facilities are not currently operating. These include combination waste processing plant and transfer station designations of two sites on Highwood in the City of Pontiac owned by Allied Waste Industries and Waste Management, both of which have yet to be constructed and the WTE designation of the GM Truck and Coach site on South Boulevard in the City of Pontiac which ceased operations in the spring of 1997.

The County's waste stream is also handled at a variety of other non-licensed facilities such as recycling drop-off centers, small transfer operations and pure source separated MRFs, none of which require Act 451 designation. Numerous closed landfills, dump sites, and incineration plant sites exist in Oakland County. Some remain as reminders of past poor practices. More than 65 landfill and dump sites (used since World War II) exist.

Inter-County Flows of Act 451 Wastes:

Michigan's Act 451 provides that wastes may be disposed of at Act 451 facilities in other counties if the export and import of the wastes are explicitly authorized in the approved solid waste management plans of the counties involved. Oakland County currently authorizes the export of wastes to all Michigan counties and to other states and countries. Imports into Oakland County are also authorized from a select list of generally contiguous counties. Additionally, the Oakland County Board of Commissioners has, since adoption of the 1994 plan amendments which established the inter-county flow authorizations, adopted a broader free market, no inter-county flow restriction stance which points the way for a release of current import restrictions.

Other disposal area facilities such as transfer stations or processing plants are also utilized. No attempt is made herein to specifically identify those located in contiguous counties.

Descriptions of currently existing facilities located within Oakland County follow.

II-3 SOLID WASTE FACILITY DESCRIPTIONS

Facility Type: Landfill

Facility Name: Oakland Heights Development

County: Oakland Location: Auburn Hills Town 3N Range 10E Section(s) 2

Map identifying location included in Attachment Section: X Yes ____ No

If facility is an Incinerator or a Transfer Station, list the final disposal site and location for Incinerator ash or Transfer Station wastes: N/A

____ Public X Private Owner: Allied Waste Industries

Operating Status (check)		Waste Types Received (check all that apply)	
X	open	X	residential
	closed	X	commercial
X	licensed	X	industrial
	unlicensed	X	construction & demolition
	construction permit	X	contaminated soils
	open, but closure pending	X	special wastes *
			other:

* Explanation of special wastes, including a specific list and/or conditions:

Site Size:

Total area of facility property:	120.74	acres
Total area sited for use:	83.4	acres
Total area permitted:	120.7	acres
Operating:	65.1	acres
Not excavated:	18.3	acres
Current capacity:	5,085,000	bankyards
Estimated lifetime:	5	years
Estimated days open per year:	309	days
Estimated yearly disposal volume:	2,000,000	gate yards

(if applicable)

Annual energy production:

Landfill gas recovery projects:	N/A	megawatts
Waste-to-energy incinerators:	N/A	megawatts

DATA BASE

FACILITY DESCRIPTIONS

Facility Type: Landfill

Facility Name: Eagle Valley RDF

County: Oakland Location: Orion Township Town: 4N Range 10E Section(s) 26, 27

Map identifying location included in Attachment Section: X Yes ____ No

If facility is an Incinerator or a Transfer Station, list the final disposal site and location for Incinerator ash or Transfer Station wastes: N/A

____ Public X Private Owner: Waste Management

Operating Status (check)		Waste Types Received (check all that apply)	
X	open	X	residential
	closed	X	commercial
X	licensed	X	industrial
	unlicensed	X	construction & demolition
X	construction permit	X	contaminated soils
	open, but closure pending	X	special wastes *
		X	other:

* Explanation of special wastes, including a specific list and/or conditions:

Site Size:

Total area of facility property:	330	acres
Total area sited for use:	330	acres
Total area permitted:	89	acres
Operating:	89	acres
Not excavated:	0	acres
Current capacity:	3,400,000	bankyards
Estimated lifetime:	4.4	years
Estimated days open per year:	286	days
Estimated yearly disposal volume:	1,500,000	gate yards

(if applicable)

Annual energy production:

Landfill gas recovery projects:	N/A	megawatts
Waste-to-energy incinerators:	N/A	megawatts

DATA BASE

FACILITY DESCRIPTIONS

Facility Type: Landfill

Facility Name: Collier Road Landfill

County: Oakland Location: Pontiac Town: 3N Range 10E Section(s) 4, 5, 8, 9

Map identifying location included in Attachment Section: X Yes ____ No

If facility is an Incinerator or a Transfer Station, list the final disposal site and location for Incinerator ash or Transfer Station wastes: ____

X Public ____ Private Owner: City of Pontiac

Operating Status (check)		Waste Types Received (check all that apply)	
X	open	X	residential
	closed	X	commercial
X	licensed	X	industrial
	unlicensed	X	construction & demolition
	construction permit	X	contaminated soils
	open, but closure pending	X	special wastes *
		X	other:

* Explanation of special wastes, including a specific list and/or conditions:

Site Size:

Total area of facility property:	210	acres
Total area sited for use:		acres
Total area permitted:		acres
Operating:		acres
Not excavated:		acres
Current capacity:	953,000	bankyards
Estimated lifetime:	8	years
Estimated days open per year:		days
Estimated yearly disposal volume:	250,000	gate cubic yards

(if applicable)

Annual energy production:

Landfill gas recovery projects:	N/A	megawatts
Waste-to-energy incinerators:	N/A	megawatts

DATA BASE

FACILITY DESCRIPTIONS

Facility Type: Landfill/Compost

Facility Name: Southeastern Oakland County Resource Recovery Authority (SOCRRA)

County: Oakland Location: Rochester Hills Town: 3N Range 11E Section(s) 13, 24

Map identifying location included in Attachment Section: X Yes ____ No

If facility is an Incinerator or a Transfer Station, list the final disposal site and location for Incinerator ash or Transfer Station wastes: ____

X Public ____ Private Owner: Southeast Oakland County Resource Recovery Authority

Operating Status (check)		Waste Types Received (check all that apply)	
____	open	____	residential
____	closed	____	commercial
X	licensed	____	industrial
____	unlicensed	____	construction & demolition
____	construction permit	____	contaminated soils
X	open, but closure pending	____	special wastes *
		____	other:

* Explanation of special wastes, including a specific list and/or conditions:

____

Site Size:

Total area of facility property:	183	acres
Total area sited for use:	____	acres
Total area permitted:	____	acres
Operating:	____	acres
Not excavated:	____	acres

Current capacity:	0	
Estimated lifetime:	0	years
Estimated days open per year:	____	days
Estimated yearly disposal volume:	0	compacted cubic yards

(if applicable)

Annual energy production:

Landfill gas recovery projects:	N/A	megawatts
Waste-to-energy incinerators:	N/A	megawatts

DATA BASE

FACILITY DESCRIPTIONS

Facility Type: Waste Transfer

Facility Name: Allied Waste Industries Transfer Station

County: Oakland Location: Southfield Town: 1N Range 10E Section(s) 34

Map identifying location included in Attachment Section: X Yes ____ No

If facility is an Incinerator or a Transfer Station, list the final disposal site and location for Incinerator ash or Transfer Station wastes: _____

____ Public X Private Owner: Allied Waste Industries

Operating Status (check)		Waste Types Received (check all that apply)	
X	open	X	residential
	closed	X	commercial
X	licensed	X	industrial
	unlicensed	X	construction & demolition
	construction permit	X	contaminated soils
	open, but closure pending	X	special wastes *
		X	other:

* Explanation of special wastes, including a specific list and/or conditions:

_____

Site Size:

Total area of facility property:	5.5	acres
Total area sited for use:		acres
Total area permitted:		acres
Operating:		acres
Not excavated:		acres
Current capacity:		years
Estimated days open per year:		days
Estimated yearly disposal volume:		compacted cubic yards

(if applicable)

Annual energy production:

Landfill gas recovery projects:	N/A	megawatts
Waste-to-energy incinerators:	N/A	megawatts

DATA BASE

FACILITY DESCRIPTIONS

Facility Type: Waste Transfer

Facility Name: SOCRRA Transfer Station

County: Oakland Location: Troy Town: 2N Range 11E Section(s) 32

Map identifying location included in Attachment Section: X Yes ____ No

If facility is an Incinerator or a Transfer Station, list the final disposal site and location for Incinerator ash or Transfer Station wastes: _____

X Public ____ Private Owner: Southeast Oakland County Resource Recovery Authority

Operating Status (check)		Waste Types Received (check all that apply)	
X	open	X	residential
	closed	X	commercial
X	licensed	X	industrial
	unlicensed	X	construction & demolition
	construction permit	X	contaminated soils
	open, but closure pending		special wastes *
			other:

* Explanation of special wastes, including a specific list and/or conditions:

_____

Site Size:

Total area of facility property:	10.9	acres
Total area sited for use:		acres
Total area permitted:		acres
Operating:		acres
Not excavated:		acres

Current capacity:		
Estimated lifetime:		years
Estimated days open per year:		days
Estimated yearly disposal volume:		compacted cubic yards

(if applicable)

Annual energy production:

Landfill gas recovery projects:	N/A	megawatts
Waste-to-energy incinerators:	N/A	megawatts

DATA BASE

FACILITY DESCRIPTIONS

Facility Type: Waste Transfer

Facility Name: SOCRRA Transfer Station

County: Oakland Location: Madison Heights Town: 1N Range 11E Section(s) 12

Map identifying location included in Attachment Section: X Yes ____ No

If facility is an Incinerator or a Transfer Station, list the final disposal site and location for Incinerator ash or Transfer Station wastes: ____

X Public ____ Private Owner: Southeast Oakland County Resource Recovery Authority

Operating Status (check)		Waste Types Received (check all that apply)	
X	open	X	residential
	closed	X	commercial
X	licensed	X	industrial
	unlicensed		construction & demolition
	construction permit		contaminated soils
	open, but closure pending		special wastes *
			other:

* Explanation of special wastes, including a specific list and/or conditions:

Site Size:

Total area of facility property:	19	acres
Total area sited for use:		acres
Total area permitted:		acres
Operating:		acres
Not excavated:		acres
Current capacity:		
Estimated lifetime:		years
Estimated days open per year:		days
Estimated yearly disposal volume:		compacted cubic yards

(if applicable)

Annual energy production:

Landfill gas recovery projects:	N/A	megawatts
Waste-to-energy incinerators:	N/A	megawatts

II-4 SOLID WASTE COLLECTION SERVICES AND TRANSPORTATION INFRASTRUCTURE

The following describes the solid waste collection services and transportation infrastructure that is utilized within the County to collect and transport solid waste.

Solid Waste Collection Services

Solid waste collection and disposal services in Oakland County are provided primarily by private sector entrepreneurs through individual agreement with individual waste generators. Nearly two thirds of the County's entire Act 451 solid waste stream is handled in such a manner.

Some of the County's municipalities choose to manage the provision of solid waste services for at least a portion of the solid waste generators within their jurisdiction. This is generally accomplished by the award of very specific contracts for the collection, processing and disposal of wastes to final selected vendors after periodic receipt of bids. In some instances, designated haulers have been identified by municipalities and a majority of the community's single family residents take advantage of such arrangements.

Beyond the single family residential waste generator, few other solid waste generators are offered services under the guise of the municipal programs. Those not being serviced must make such arrangements on their own. Local government involvement beyond adoption of basic health, safety and welfare ordinances or beyond the oversight management of municipal solid waste service contracts is very limited.

Fourteen municipalities in the southeast sector of the County joined together in 1951 to form the Southeast Oakland County Incinerator Authority which would manage the receipt and disposal of wastes handled by the municipalities, generally being the single family residential waste stream. The original fourteen member municipalities were Berkeley, Beverly Hills, Birmingham, Clawson, Ferndale, Hazel Park, Huntington Woods, Lathrup Village, Madison Heights, Oak Park, Pleasant Ridge, Royal Oak, Royal Oak Township, and Troy. Beginning in 1955, the authority operated a transfer station, a Type II landfill, and a 600 ton per day design capacity incinerator. The incinerator was closed in mid 1988 and the site is currently operated as a transfer station. In May, 1989, the Authority changed its name to the Southeastern Oakland County Resource Recovery Authority (SOCRRA). Since the spring of 1991, the Authority has operated a phone for appointment household hazardous waste (HHW) program for its residents. This program is widely envied throughout southeast Michigan. In 1992, the Authority opened a source separated material recovery facility adjacent to its transfer station in the City of Troy. The Authority's landfill presently is operated as a yard waste composting facility and the landfill is currently receiving only the compost operation residues and noncompostable yard wastes. In 1997, as original authority debt has been paid off, two municipalities (Madison Heights and Royal Oak Township) are no longer with the Authority.

Oakland County's municipalities were questioned as to the specific service levels provided as of January 1, 1996. A summary of survey results is attached as part of Attachment H.

Curbside municipal solid waste services are offered in 42 communities for mixed-wastes, in 39 communities for recyclables, and within the same 39 for yard wastes. Twenty-four municipalities offer all three curbside services in addition to offering access (at least on a periodic basis) for residents to a household hazardous waste (HHW) collection program. Thirteen additional communities offer the full curbside services including mixed, recyclables and yard wastes. Approximately 32% of the entire Act 451 waste stream is managed through the municipal programs.

The remainder is managed directly by the waste generators, generally through arrangements with private sector service providers.

Table II-11: Waste Collection & Disposal Service Providers

Service Provider	Service Type	Service Area
A&All Waste	Collection	Variable
Compliance Mgt Assoc.	Collection	Variable
Great Lakes Waste Service (Allied)	Collection and disposal	County-wide
Waste Management, Inc.	Collection and disposal	County-wide
Take-away trash service	Collection	Pontiac area
Cohen Scrap Metal/Rubbish Removal	Collection	Tri-county metro area
United Environmental Services, Inc.	Industrial & commercial containers	Tri-county metro area
Tringali Sanitation	Collection and disposal	Tri-county metro area
Montgomery & Sons	Industrial & commercial containers	Oakland County
J&D Rubbish Removal	Light hauling	Oakland County
Rogan & Son Co.	Collection and disposal	Clarkston
TNR Dumpster Rental	Industrial & commercial containers	County-wide
American Recycling	Construction & Roll-offs	County-wide
Republic	Collection and disposal	County-wide
Painter and Ruthenberg	Collection	Variable
Car Trucking	Collection	Variable
Waste-Away	Collection	Variable
Various other clean-up companies and small haulers too numerous to name	Collection	County-wide

Recycling Collection Services

Two solid waste authorities (SOCRRA and RRRASOC) offer recycling services to their member communities in Oakland County. SOCRRA operates a materials recovery facility in Troy that processed 19,400 tons of recyclables in 1998 from private waste haulers serving its 12 member communities. Some additional tonnage is also processed at the facility, including some commercially-generated corrugated cardboard.

Eight municipalities in the southwest sector of the County joined together as the Resource Recycling and Recovery Authority of Southwest Oakland County (RRRASOC) in 1989. The Authority owns and manages the operation of a material recovery facility for source separated recyclables which is located in the City of Southfield. The facility, which opened for operations in late 1994, receives the source separated recyclables not only from member communities, but from any municipality in the region. The Authority additionally operates recyclable material drop-off centers located throughout its jurisdiction for all Authority residents. The eight municipalities are Lyon Township and the cities of South Lyon, Wixom, Walled Lake, Novi, Farmington, Farmington Hills and Southfield. Individual member communities are responsible for contracting for the collection of residential recyclable materials with private sector service providers. In 1998, RRRASOC processed 9,600 tons of recyclables for its member communities, and a total of 53,000 tons of material from commercial sources and other municipalities (both Oakland and non-Oakland County).

Most other Oakland municipalities are served by either curbside recycling (subscription or by contract) services and/or drop-off recycling.

Table II-12: Recycling Service Providers

Service Provider	Service Type	Location/Service Area
Various waste haulers	Curbside recycling	14 SOCRRA communities
Various waste haulers	Curbside / drop-off recycling	RRRASOC communities
Various waste haulers	Curbside / drop-off recycling	Non-authority communities
Various municipalities	Drop-off recycling	Various
Recycling Authority-RRRASOC	Material Recovery Facility	8 communities +
Recycling Authority-SOCRRA	Material Recovery Facility	12 member communities
Fulcircle Ballast Recyclers	Lamp/ballast recycler	state-wide
Shred-it	Paper shredder/recycler	Tri-county metro area
Alan Blum, Co.	Paper recycler	Tri-county metro area
Royal Oak Waste Paper	Paper recycler	Tri-county metro area
MidStates Fibers, Inc.	Paper recycler	Tri-county metro area
ARC Scrap Mgt Inc.	Scrap metal processor	Birmingham
Action Metal Recycling	Scrap metal processor	Pontiac
AFCO Corp	Scrap metal processor	Holly
Bresler Metal Co.	Scrap metal processor	W. Bloomfield Twp
Crest Metals	Scrap metal processor	Southfield
Data Metal	Scrap metal processor	Southfield
Dixson Metal Processing	Scrap metal processor	Independence Twp
Drayton Iron & Metal	Scrap metal processor	Drayton Plains
FPT Pontiac Div.	Scrap metal processor	Pontiac
Fishman & Sons	Scrap metal processor	Royal Oak
Franklin Metal	Scrap metal processor	Southfield
GJK Metals	Scrap metal processor	Southfield
Mann Metals	Scrap metal processor	Walled Lake
Marker Metal Co.	Scrap metal processor	Northville
Marwol Metals Ltd	Scrap metal processor	Southfield
Matz Metal Co.	Scrap metal processor	Farmington Hills
Metaltex Corp	Scrap metal processor	Southfield
Mike Wiener Scrap Iron & Metal	Scrap metal processor	Southfield
Purther Recycling, Inc.	Scrap metal processor	Bingham Farms
R&E Scrap Metals	Scrap metal processor	Oak Park
Rose Metal Recycling	Scrap metal processor	Farmington Hills
Royal Oak Metal	Scrap metal processor	Royal Oak
Tri-State Metal Recycling	Scrap metal processor	Oak Park
Starbound Inc.	Scrap rubber recycler	Novi
Various others	Scrap and other recyclables	Various

Yard Waste Collection Services

Oakland County has a solid history of yard waste composting programs, with SOCRRA leading the way with the largest yard waste composting facility in Michigan. SOCRRA also boasts an aggressive yard waste reduction education program, and has documented declines in yard waste generation since those programs began nearly 10 years ago. SOCRRA in 1998 documented more than 48,000 tons of yard waste as composted or reduced through education programs.

Most other communities contract for yard waste collection services with material going to privately-operated facilities outside the county (Washtenaw and Macomb counties), with the exception the City of Pontiac which operates a yard waste composting program.

Table II-13: Yard Waste Service Providers

Service Provider	Service Type	Service Area	Compost Facility
Various waste haulers	Curbside collection of leaves, grass, brush (seasonal)	SOCRRA communities	SOCRRA
City of Pontiac	Curbside collection of leaves, grass, brush (seasonal)	City of Pontiac	City of Pontiac
Various waste haulers	Curbside collection of leaves, grass, brush (seasonal)	Oakland County	Arbor Hills, King of the Wind Farms, Tuthill Composting, Mr. Rubbish, others

II-5 EVALUATION OF DEFICIENCIES AND PROBLEMS

The following is a description of problems or deficiencies in the existing solid waste system.

Evaluation of Existing Solid Waste Facilities and Services:

Municipally managed programs handle about 32% of Oakland's waste stream. The majority of this service is provided by private sector firms under contract to the municipalities. Local government officials are generally satisfied with the current levels of municipally offered solid waste services. All of the remaining waste stream is handled through arrangements made by the waste generators directly with the private sector providers. Intense competition exists among the private sector waste industries even with consolidation of the marketplace in recent years and generators are generally satisfied that good service is delivered or that it can easily be obtained.

The public generally perceives that solid wastes are being collected, handled, processed and disposed of in an adequate manner. The cost of providing solid waste services has remained highly competitive generally because of the regional excess of landfill capacity. Minimal problems are perceived. Public comments or questions generally are aimed at services that are not easily or readily available such as disposal points for household hazardous waste, oil and fuels, pesticides, yard wastes and etc.. Complaints about disposal facilities are generally handled quickly by the facility owners and/or operators and little public outcry or pressure exists for expanded or changed services. In fact, public interest in the overall subject has dwindled from that exhibited in the early part of this decade.

However, even given these prevalent viewpoints on the subject, a close look at existing facilities and management systems reveals several areas that are problematic.

1. The majority of in-county landfill disposal capacity may be depleted before the end of the year 2006. Costs will increase as the percentage of the waste stream handled by exports and the distance to the disposal points increases. During 1997 and 1998, an average of 40% of the County's waste stream was exported, principally to disposal facilities in contiguous counties. Siting new landfills in the County is difficult due to the high price of land, environmental considerations relating to soils and groundwaters, and sites with access to the freeway system over all weather roads without seasonal load limitations are limited or the provision of such roadway facilities is expensive.

2. Some Michigan counties that are willing to accept the import of wastes from Oakland County impose conditions that the municipality from which the wastes originated must have had volume reduction programs. Some Oakland municipalities are lacking in recycling program options which may limit the availability of disposal options and result in the required long distance export of the wastes.

3. The private sector has not stepped forward to provide convenient at-cost HHW disposal services for the general public. With the exception of those that reside within the SOCRRA municipalities, where appointments can be made on any business day to dispose of HHW materials at SOCRRA facilities throughout the year, the County's residents inquire or complain most frequently about this lacking.

4. Multi-family residents are generally not offered access to aggressive recycling programs, even in municipalities where such services to single family residents are offered. Logistics are a problem within many multi-family projects and the provision of such programs is challenging.

5. Few municipalities direct their attention to waste reduction programs for the non-residential waste stream.

6. Current recycling and volume reduction efforts do not begin to approach the goals adopted within the County's 1990 Solid Waste Management Plan update. These goals are shown in the table following. It is now recognized that the originally adopted volume reduction goals are difficult to measure and perhaps not realistically achievable. Revised, realistic goals need to be adopted.

Volume Reduction Goals for Oakland County's 1990 Solid Waste Management Plan

VR Technique	1995	2005
Source Reduction & Reuse	5%	10%
Yard Waste Composting	5%	5%
Recycling	20%	35%
Totals	30%	50%

7. The solid waste industry in southeastern Michigan has undergone a dramatic restructuring. Consolidations have occurred or are currently underway such that by the year 2000, services may essentially be offered by only 2 or 3 major service providers. This phenomenon is particularly true without regard to disposal services. A decade ago, more than 60 haulers competed within the County to provide disposal services. Today, the total number of firms providing basic solid waste services numbers less than ten and although the names of some long established local businesses have remained unchanged, ownership of the firms is gradually being acquired by the large operations. The result is that the quality of services and the level of attention paid to individual customers may be gradually diminishing. As the major handling, processing and disposal facilities come under the ownership of only a few, access to such facilities by the remaining small operations may become severely restricted. Given such pressures and given the increasing average distance to access facilities, the remaining small operations will most likely accept purchase by the major operations. All of these situations may cause the economics of the marketplace to be dramatically dynamic.

8. The economic times as measured by full employment and high average income levels are excellent. The cost of waste disposal services is generally viewed as being stable and reasonable. Excess daily operating capacity exists at the landfills within the region and wastes are imported into these facilities from generation points outside of Michigan. These several factors together may be contributing to attitudes which have permitted an increase in per capita waste generation rates. Few are willing to actively consider the subject of waste management planning (unless a designated facility is located or proposed to be located within their realm of influence) and many believe that the subject of waste disposal is simply not a problem to worry about. Some local governmental units have reduced their solid waste service offerings from levels that existed earlier in the decade and others are actively considering dropping some program elements to achieve short-term savings.

II-6 DEMOGRAPHICS

The following section presents the current and projected population densities and centers for five and ten year periods, identification of current and projected centers of solid waste generation including industrial solid waste for five and ten year periods as related to the Selected Solid Waste Management System for the next five and ten year periods. Solid waste generation data is expressed in tons or cubic yards, and if it was extrapolated from yearly data, then it was calculated by using 365 days per year, or another number of days as indicated.

Population

Oakland County, in 1998, was home to approximately 1,176,000 residents and its businesses and industries provided more than 782,000 jobs to people who reside throughout southeastern Michigan. Oakland County's population is 12.1% of the State total while the employment values represent 15.5% of the State's total. The County geographically encompasses some 910 square miles and is governed by 61 local units of government - 30 cities, 10 villages and 21 townships. The County has more municipalities (61) than any other Michigan county (with Wayne County to the south being second with 43 municipalities). Michigan's 83 counties average 21.5 municipalities each.

The County population is expected to grow to 1,188,817 by the year 2000, and to 1,356,879 by the year 2020. The number of households in 1998 was more than 458,000 and is expected to reach close to half a million by 2000.

The following presents the current and projected population densities and centers for five and ten year periods.

Table II-14 Oakland County Population

	1995	1998	2003	2008
Addison Township	5,483	5784	6258	6715
Auburn Hills	19,663	20995	23225	25119
Berkley	16,986	16917	16758	16641
Beverly Hills	10,341	10195	10009	9949
Bingham Farms	995	946	890	864
Birmingham	20,147	20115	20053	20056
Bloomfield Hills	4,427	4501	4626	4752
Bloomfield Township	43,133	42813	42227	41599
Brandon Township	12,220	12902	13959	14989
Clarkston	977	968	948	924
Clawson	13,606	13353	13003	12781
Commerce Township	26,267	28007	30754	33440
Farmington	10,190	10188	10170	10163
Farmington Hills	78,008	79199	81046	82386
Ferndale	25,054	24980	24803	24681
Franklin	2,679	2583	2476	2425
Groveland Township	5,432	5759	6285	6811
Hazel Park	20,108	19728	19203	18930
Highland Township	19,071	19771	20926	22268
Holly	5,809	5936	6092	6251
Holly Township	3,660	3826	4074	4294
Huntington Woods	6,429	6461	6503	6550
Independence Township	28,498	30771	34255	37198
Keego Harbor	2,938	2912	2880	2877
Lake Angelus	338	361	417	513
Lake Orion	3,009	3001	2982	2961
Lathrup Village	4,296	4222	4120	4045
Leonard	380	390	401	414
Lyon Township	10,571	11377	12634	14114
Madison Heights	31,436	30736	29800	29089
Milford	6,301	6624	7128	7442
Milford Township	8,142	8804	9850	10847
Northville (part)	3,408	3371	3276	3165
Novi	41,595	45989	53417	60982
Novi Township	0	0	0	0
Oak Park	30,905	30943	30894	30974
Oakland Township	10,232	11197	13134	15768
Orchard Lake	2,326	2357	2407	2470
Orion Township	25,409	27223	30079	32706
Ortonville	1,524	1626	1792	1951
Oxford	3,235	3350	3479	3516
Oxford Township	10,278	10801	11646	12494
Pleasant Ridge	2,805	2774	2721	2685
Pontiac	70,018	68261	65748	63950
Rochester	7,798	8211	8903	9647
Rochester Hills	66,365	68316	71085	73076
Rose Township	5,853	6274	6951	7613
Royal Oak	65,367	64949	64447	64373
Royal Oak Township	5,256	5395	5636	5930
South Lyon	7,503	8146	9279	10362
Southfield	75,574	74888	73843	73240
Springfield Township	12,660	13826	15756	17673
Sylvan Lake	1,915	1910	1881	1835
Troy	79,002	81026	84181	85786
Walled Lake	6,479	6719	7052	7399
Waterford Township	69,222	69622	70386	71363
West Bloomfield Township	57,162	58258	59928	61592
White Lake Township	26,527	27985	30228	32085
Wixom	11,487	12757	15035	17408
Wolverine Lake	4,676	4620	4527	4441
County Totals	**1,151,175**	1,192,412	1,232,499	1,272,624
Less Northville	*3,408*	*3,346*	*3,230*	*3,121*
Solid Waste Planning Values	**1,147,767**	**1,172,546**	**1,213,188**	**1,253,409**

Source: SEMCOG Regional Development Forecast 2020; modified to meet plan year dates (i.e. 1998, 2003, 2008); modifications included simple straight-line estimates of population increases

II-7 LAND DEVELOPMENT

The following describes current and projected land development patterns, as related to the Selected Solid Waste Management System, for the next five and ten year periods.

Oakland County covers 910 square miles immediately north of the city of Detroit, in southeast Michigan. The County ranks third in per capita income for counties across the U.S. with a population of more than one million. Per capita income rose 40.6 percent between 1991 and 1996 ($27,120 vs. $38,127). The median income was $57,360 in 1997, an increase of 35.6 percent from 1991.

Oakland County boasts some 450 fresh-water lakes and 88,000 acres of parkland, in addition to more than 244,000 acres of open space and agricultural land. Land use patterns are displayed in Table II-15.

Table II-15: Oakland County Land Use

	Agricultural & Vacant	Outdoor Recreation & Conservation	Water	Institutional, Commercial Industrial	Residential	Transportation, Communication & Utility
Percentage of total	42.1%	9.9%	4.7%	9.1%	28.1%	6.1%
Acres	244,000	57,100	35,300	53,000	163,000	35,300

Source: Oakland County Planning & Economic Development Services, *Economic Summary*, 1999/2000 Edition

II-8 SOLID WASTE MANAGEMENT ALTERNATIVES

The Designated Planning Agency (DPA) and the Solid Waste Planning Committee (SWPC) completed a comprehensive strategic planning process that outlined strengths, weaknesses, opportunities, and threats that are part of the current and potential future solid waste management system that services the County. This analysis was used to create goals and objectives which are provided immediately after the Executive Summary. These goals and the strategic analysis formed the basis for developing the solid waste management strategy and the selected alternative that is described in this Plan as the Plan's Enforceable Program and Process as provided for in Part 115, Section 11533 (1) of the Michigan Natural Resources and Environmental Protection Act (NREPA).

In developing the Plan's Enforceable Program and Process the DPA and SWPC first screened out strategies that were technically, politically or economically unsuitable for the County. Certain waste management technologies, incineration, for example, were determined based on historical experience for the region to not be economically and technically appropriate for further analysis.

The DPA and SWPC then reviewed solid waste management program strategies that were viewed as technically and economically feasible. These program strategies were considered as potential System Alternatives that varied by level of landfill diversion, capital and operating cost and implementation requirements. These program strategies were examined based on their key features, advantages, disadvantages, overall performance and cost impact and applicability for the county. Much of this analysis is contained in a series of reports and studies prepared for the County during the implementation process for the preceding plan.

At this stage in the strategic planning process some program strategies were determined to be unsuitable for the County based on overall technical and economic feasibility of various approaches and their ability to:

- build on the strengths of the local and regional situation,
- address current deficiencies and weaknesses,
- work with organizational approaches that the County is willing to consider,
- be fundable through systems that the County can implement,
- respond to and build community involvement and support,
- be enforceable, and
- set measurable goals that can be tracked to determine progress.

THE PLAN'S SELECTED ALTERNATIVE

The strategic planning process was carried through to final conclusions regarding the program strategies that would make up the Plan's Selected Alternative and become the foundation for the Plan's Enforceable Program as required by statute. The strategic planning process included final evaluation and ranking against the criteria as well as listening to the views of key stakeholders in the planning process, and others considered to be critical to implementation of the plan - primarily local government officials and service providers.

The DPA and SWPC concluded that a Regional Waste Management and Material Recovery System was the optimum choice as the Selected Alternative for the Plan's Enforceable Program. This Selected Alternative is described in the balance of the Plan with further detail provided in Appendix A of the Plan. Appendix B of the Plan contains further detail regarding the System Alternatives that were not selected as part of the Plan's Enforceable Program.