PLANNING REFERENCES

PLANNING REFERENCE ON EXISTING INDIANA SOLID WASTE MANAGEMENT FACILITIES

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

EXISTING SOLID WASTE MANAGEMENT FACILITIES

INTRODUCTION

The Solid Waste Management Board approved revisions to solid waste management rules 329 IAC 2-11-3, 2-14-8, and 2-19-6. These rules require all solid waste management facilities to submit quarterly reports to the Department of Environmental Management. These reports must include the type, amount, and origin of the solid waste received at the facilty. These new rules became effective on Novenber 22, 1990. The first quarterly report covers January through March 1991. This information will be made available as soon as possible.

The following sections summarize informational sources with regard to the number and status of existing solid waste management facilities located in Indiana at the present time.

PERMITTED LAND DISPOSAL FACILITIES

Permitted sites have been classified herein according to the following: municipal solid waste sites; solid fill sites; landfills located on military reservations; and ash, scrubber sludge, foundry waste, and municipal wastewater sludge landfills and monofill sites. Permitted restricted waste sites are not specifically analyzed in any detail in this section. This information is presented in Table VI-1-1.

Currently Permitted Facilities

Figure VI-1-1 shows the distribution of existing sanitary landfills across the State of Indiana. In addition to the permitted locations, there is one reported un-permitted solid waste disposal site operating the Gary area, which is also shown on Figure VI-1-1. Table VI-1-1 provides information on all other permitted waste disposal sites in Indiana, including solid fill sites, military landfills and ash, scrubber sludge, foundry waste, and municipal wastewater sludge disposal sites.

Analysis of the data for permitted municipal solid waste landfills in Indiana reveal the following information:

- There are currently 79 permitted sanitary landfills, excluding solid fills, military sites, and ash and sludge disposal sites.

- There is one known un-permitted solid waste disposal site under court jurisdiction.

- There are currently 18 permitted ash disposal or monofill sites which specifically dispose of ash and/or scrubber sludge from coal or solid waste combustion, or sludge from municipal wastewater treatment.

- There are 7 permitted landfills (solid waste and restricted waste) on military reservations.

- Approximately 39 percent of the permitted solid waste disposal sites are publicly owned.

- Only 11 of Indiana's 79 solid waste landfills have weigh scales to accurately record incoming trash flows, as shown on Figure VI-1-1.

- Twenty-six of Indiana's 92 counties currently have no permitted solid waste landfills.

Expansion Applications

The IDEM has received applications for expansion permits from 21 of the 79 permitted solid waste landfills within the state at this time. All but three of the expansion applications had to do with using additional acreage (i.e. horizontal expansion/enlargement of existing facilities). One expansion permit had been received for an existing scrubber sludge disposal site. Table VI-1-2 provides a summary of the expansion permits currently pending before the IDEM. As indicated, some applications are dated as early as 1985. The overall time frame necessary to process these sanitary landfill expansion applications has historically ranged from two to more than five years, depending on the particular circumstances of the requesting landfill.

COUNTY / REGISTRANT NR. / FACILITY TYPE	NAME OF FACILITY / LOCATION OF FACILITY / SITE CONTACT	CPP PERMIT / OPP PERMIT / EXPIRES	RESPONSIBLE PARTY(RP) / ADDRESS	RP PHONE / SITE PHONE
ADAMS 01-0002 ML	ADAMS COUNTY SOUTH LANDFILL CR 850 S, 1/5 MILE E OF US 27 TYLER, BOB	SW 179 1-2 00/00/00	ADAMS CO. COMMISSIONERS COURT HOUSE DECATUR, IN 46733	219/692-6222 219/589-3366
ADAMS 01-0003 ML	ADAMS COUNTY NORTH LANDFILL 1 1/2 MILE W OF SR27 CR 450N TYLER, BOB	SW 186 1-3 00/00/00	ADAMS COUNTY COMMISSIONER ADAMS COUNTY COMMISSIONERS COURTHOUSE DECATUR, IN 46733	219/692-6222 219/724-9971
ALLEN 02-0002 PL	NATIONAL SERV-ALL LANDFILL 6231 MCBETH RD 1/2 MILE W OF SMITH RD FT WAYNE MR CHUCK WALBRIDGE	SW 321 2-2 00/00/00	MR CHUCK WALBRIDGE NATIONAL SERV-ALL, INC 6231 MCBETH ROAD FORT WAYNE IN 46809	219/747-4110 219/747-4117
ALLEN 02-0003 PL	UNITED REFUSE LANDFILL 5000 SMITH RD FT WAYNE 1/4 MILE N OF MCBETH RD MR MICHAEL J BOCK	SW 174 2-3 00/00/00	MR MICHAEL J BOCK UNITED REFUSE, INC. P.O. BOX 9039 FORT WAYNE, IN 46809	219/432-5582 219/432-5582
BARTHOLOMEW 03-0003 ML	BARTHOLOMEW COUNTY LANDFILL SR 46, 1 MILE E OF PETERSVILLE MR JIM MURRAY	SW 135 3-3 00/00/00	BARTHOLOMEW/COLUMBUS SWDA CITY-COUNTY SOLID WASTE DISP AUTHR C/O BARTH. CO AUDITOR, 440 THIRD ST COLUMBUS, IN 47201	812/379-1757 812/379-4941
BARTHOLOMEW 03-0004 PL	CAMP ATTERBURY SANITARY LANDFILL JCT. HENDRICKS FORD RD AND MAUXFERRY RD MS. NANCY MCWHORTER	SW 272 3-4 11/01/90	MS. NANCY MCWHORTER ATTERBURY RESERVE FORCES TRNG AREA EDINBURGH, IN 46124	812/526-9711 317/542-2210
BARTHOLOMEW 03-0005 PT	TELLMAN ROAD TRANSFER STATION 1975 WEST TELLMAN ROAD COLUMBUS, INDIANA MR GREG LITTLETON	SW 347 3-5 00/00/00	MR THOMAS B. RUMPKE RUMPKE AND RUMPKE INC. 10795 HUGHES ROAD CINCINNATI, OHIO 45251	513/851-0122 812/372-1225
BLACKFORD 05-0001 ML	BLACKFORD COUNTY LANDFILL CR 100 S AND CR 100 E (WILLIAMS RD) MR RAYMOND ROGERS	SW 155 5-1 00/00/00	BLACKFORD CO COMMISSIONER BLACKFORD COUNTY COMMISSIONERS COURT HOUSE HARTFORD CITY, IN 47348	317/348-0306 317/348-4087

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BOONE 06-0001 PL	NORTHSIDE SANITARY LANDFILL US 421, 1 MILE S OF SR 32 MR GREG BANKERT	SW 152 6-1 00/00/00	MRS JOHN W BANKERT NORTHSIDE SANITARY LANDFILL 985 SOUTH US 421 ZIONSVILLE, IN 46077	317/769-4223 317/769-4223
BROWN 07-0001 PL	BROWN COUNTY LANDFILL 2/3 MILE NORTH OF RAILROAD ROAD MR PAT MCQUIRE	SW 93 7-1 00/00/00	MR RICHARD WIGH BROWN COUNTY LANDFILL, INC. 3200 SYCAMORE COURT, BLDG 2B COLUMBUS, IN 47203	812-372-9511 812/988-2927
CARROLL 08-0003 MT	CARROLL COUNTY TRANSFER STATION CR 625 W, 4MI SE OF DELPHI JUNIOR E MAXWELL	SW 332 8-3 03/01/91	CARROLL CO. COMMISSIONERS CARROLL COUNTY COMMISSIONERS COURT HOUSE DELPHI, IN 46923	317/564-3172 317/564-3114
CASS 09-0002 PL	BYERS SANITARY LANDFILL FACILITY CR 300 S & CR 150 E MR DARYL BUSTER	SW 279 9-2 00/00/00	BYERS LANDFILL FACILITY WASTE MGMT OF NORTH AMERICA, INC BOX 7070 SUITE 100,TWO W. CORP CNTR WESTCHESTER, IL 60153	708-409-0700 219/722-5771
CLARK 10-0001 ML	CLARK-FLOYD LANDFILL 2 MILES N OF SR 60, ON WILSON SWITCH RD MR FRED DAY	SW 6 10-1 00/00/00	MR PHILIP F. CATO MR PHILIP F. CATO P O BOX 2128 CLARKSVILLE, IN 47130	812/945-5976 812/246-9755
CLARK 10-0002 PT	BI-CO TRANSFER STATION JUNCTION OF SR 131 AND SR 62 MR DAVID L HYMAN	SW 162 10-2 00/00/00	MR DAVID L HYMAN BI-CO TRANSFER STATION, INC. 958 LOGAN STREET LOUISVILLE, KY 40204	502/582-3329 812/944-0234
CLARK 10-0003 PL	IAAP CHARLESTOWN LANDFILL ARMY AMMUNITION PLANT PROP CHARLESTOWN MR TOM EUBANK, ENV. ENG.	SW 237 10-3 00/00/00	COMMANDING OFFICER INDIANA ARMY AMMUNITION PLANT ATTN: SARIN-OR CHARLESTOWN, IN 47111	812/284-7600 812/284-7762
CLAY 11-0002 PL	CENTER POINT LANDFILL 1 MILE NW OF CENTER POINT PO BOX 8, CENTER POINT 47840 MR. GEORGE KOLLMEYER	SW 58 11-2 00/00/00	MR. JAY ROBERTS, MID-AM W MID-AMERICAN WASTE SYSTEMS 1006 WALNUT STREET P. O. BOX 156 CANAL WINCHESTER, OHIO 43110	614/833-9155 812/835-2068

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CLINTON 12-0001 PL	MONTGOMERY LANDFILL SR 32, 3 MILES N OF FRANKFORT MR RICK MONTGOMERY	SW 173 12-1 00/00/00	MR RICK MONTGOMERY MR RICK MONTGOMERY, PRESIDENT R R 7 FRANKFORT, IN 46041	317/654-5042 317-654-8144
DAVIESS 14-0002 ML	DAVIESS COUNTY LANDFILL CR 200 N 1/4 MILE E OF CR 550 E MR. RALPH PRICE	SW 161 14-2 09/01/95	DAVIESS CO. COMMISSIONER DAVIESS COUNTY COMMISSIONER COURTHOUSE WASHINGTON, IN 47501	812/254-5798 812/486-3774
DEARBORN 15-0002 ML	GREENDALE LANDFILL MITCHELL RD, 4 MILES NE OF GREENDALE MR ARCHIE ABNER	SW 44 15-2 03/01/91	MR F. R. RUDOLPH MR F R RUDOLPH 510 RIDGE AVENUE LAWRENCEBURG, IN 47025	812/537-2125 812/537-2125
DECATUR 16-0002 CC	DECATUR COUNTY COLLECTION CONTAINER SYSTEM DECATUR COUNTY	RULE 16-2 00/00/00	DECATUR CO COMMISSIONERS DECATUR COUNTY COMMISSIONERS COURTHOUSE GREENSBURG, IN 47240	812/663-2570
DECATUR 16-0003 PL	DECATUR HILLS LANDFILL CR 280E, 1/2 MILE EAST OF SR 421 4 MILES SOUTHEAST OF GREENSBURG MR. BILL WISE	NA FP16-3 01/01/92	MR. JOHN BALKEMA DECATUR HILL, INC. R.R. 1, BOX 76 MODOC, INDIANA 47358	317/853-5714 812/663-6703
DEKALB 17-0002 PT	MERRITT PROCESSING FACILITY 3907 COUNTY ROAD 47 AUBURN, INDIANA	17-2 11/01/94	MR. CHARLES WALBRIDGE NATIONAL SERV-ALL, INC. 6231 MCBETH ROAD FORT WAYNE, INDIANA 46809	219/747-4110
DELAWARE 18-0003 MT	MUNCIE TRANSFER STATION 811 EAST CENTENNIAL, MUNCIE IN MR JAMES FORD	SW 269 18-3 01/01/96	MUNCIE SANITARY DISTRICT CITY OF MUNCIE-SANITARY DISTRICT 5002 KILGORE AVE MUNCIE, IN 47304	317/747-4865
DELAWARE 18-0004 PP	MUNCIE PAPER PROCESS 701 WEST 23RD ST MUNCIE MR TIM BECHTEL	FP18-4 04/01/95	MR TIM BECHTEL MUNCIE PAPER PROCESS, INC 701 WEST 23RD ST MUNCIE, IN 47302	

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DUBOIS 19-0002 ML	JASPER LANDFILL CR 350 W, 1/4 MILE N OF CR 150 S MR ERNIE WARD	SW 9 19-2 00/00/00	CITY OF JASPER HON JEROME ALLES, MAYOR CITY HALL JASPER, IN 47546	812/482-4255 812/482-2237
DUBOIS 19-0004 CC	DUBOIS COUNTY COLLECTION CONTAINER SYSTEM DUBOIS COUNTY MR. ROSS COOK	RULE 19-4 00/00/00	DUBOIS CO. COMMISSIONERS DUBOIS COUNTY COMMISSIONERS COURTHOUSE JASPER, INDIANA 47546	812/482-5505 812/482-5505
ELKHART 20-0003 PL	EARTHMOVERS LANDFILL CR 26, 1/2 MILE EAST OF CR 7 MR JERRY PERRIN	SW 192 20-3 00/00/00	EARTHMOVERS, INC. MR CHARLES H HIMES 705 NORTH WILDWOOD ELKHART, IN 46514	219/293-8534 219/875-5232
ELKHART 20-0004 ML	ELKHART COUNTY LANDFILL (CR 7 LANDFILL) CR 7, 1 1/2 MILES S OF CR 20 MR TOM WILSON	SW 210 20-4 04/01/91	ELKHART CO. COMMISSIONERS ELKHART COUNTY COMMISSIONERS ELKHART CO ADMIN BLDG, 117 S 2ND ST GOSHEN, IN 46526	219/293-8534 219/522-2581
ELKHART 20-0008 CD	COUNTY ROAD 45 PIT SOLID FILL SITE 24399 CR 45 NEAR DUNLAP, IN MR JACK WARNER	SW 341 20-8 00/00/00	MR JOHN BAMBER WARNER AND SONS, INC. PO BOX 37, 29399 US 33W ELKHART, IN 46515	219/293-3547
FAYETTE 21-0001 PL	MASON-HAYES LANDFILL CR 900 N AND 300 W MR. DARWIN BRIAR	SW 94 21-1 00/00/00	MR FRANK HAYES MR. FRANK HAYES R.R. 2 BOX 71 NEW CASTLE, IN 47362	317/529-0287 317/478-4468
FOUNTAIN 23-0001 ML	FOUNTAIN COUNTY LANDFILL US 41, 3/8 MILE N OF US 136 MR JACK POWELL	SW 136 23-1 00/00/00	FOUNTAIN CO. COMMISSIONER FOUNTAIN COUNTY COMMISSIONERS COURTHOUSE COVINGTON, IN 47932	317/793-2243
FRANKLIN 24-0001 MT	FRANKLIN COUNTY TRANSFER STATION 2 MILES WEST OF BROOKVILLE 1/2 MILE SOUTH US 52 MR. WALTER HARDING	SW 300 24-1 00/00/00	FRANKLIN CO. COMMISSIONER FRANKLIN COUNTY COMMISSIONERS COURTHOUSE BROOKVILLE, IN 47012	317/647-4631 317/647-6710

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FULTON 25-0003 PL	COUNTY LINE LANDFILL 1 MILE E OF US 31 ON SR 110 MR. GENE HORN	SW 275 25-3 08/01/94	MR. GENE HORN MR. GENE HORN RR 1, BOX 96 KEWANNA, IN 46939	 219/892-6483
GIBSON 26-0002 SS	GIBSON STATION SCRUBBER LANDFILL 11 MILES WEST OF PRINCETON MR. RON RICHARD	SW 256 26-2 00/00/00	MR. VINCE GRIFFITH PSI, INC 1000 EAST MAIN STREET PLAINFIELD, IN 46168	317/838-1955 812-386-8491
GIBSON 26-0003 ML	GIBSON COUNTY LANDFILL NO 2 CR 475E, 4 MILES SE OF PRINCETON MR. DON WHITEHEAD	SW 335 26-3 00/00/00	GIBSON CO. COMMISSIONERS GIBSON COUNTY COMMISSIONERS COURTHOUSE PRINCETON, IN 47670	812/385-3260 812/385-3136
GIBSON 26-0004 CC	GIBSON COUNTY COLLECTION CONTAINER SYSTEM GIBSON COUNTY DON WHITEHEAD	RULE 26-4 00/00/00	GIBSON CO. COMMISSIONERS GIBSON COUNTY COMMISSIONERS COURTHOUSE PRINCETON, INDIANA 47670	 812/385-3136
GREENE 28-0002 PL	WORTHINGTON LANDFILL SR 48 & CR 500 WEST MR. RANDY DENTON	SW 262 28-2 00/00/00	MR THOMAS RUMPKE RUMPKE AND RUMPKE, INC 10795 HUGHES ROAD CINCINNATI OHIO 45251	513/851-0122 812/875-2545
HAMILTON 29-0002 PT	HAMILTON COUNTY TRANSFER STATION 4 MILES SE OF NOBLESVILLE ON SR 238 MR TIM GLEASON	SW 308 29-2 01/01/94	MR TIM GLEASON INDIANA WASTE SYSTEMS INC 11735 STATE ROAD 238 EAST NOBLESVILLE IN 46060	312/821-8100 317/773-2655
HAMILTON 29-0003 FM	NOBLESVILLE CASTING INC 1600 SO 8TH ST NOBLESVILLE JAKE JACOBY	SW 331 29-3 00/00/00	MR JAKE JACOBY NOBLESVILLE CASTINGS INC. 1600 SOUTH 8TH STREET NOBLESVILLE, IN 46060	317/773-3313
HANCOCK 30-0001 PL	HANCOCK COUNTY LANDFILL CR 300 S AND 900 E MR DANA CALDWELL	SW 63 30-1 00/00/00	MR DANA CALDWELL MR DANA CALDWELL BOX 212 MORRISTOWN, IN 46161	317/763-6258 317/763-6258

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HANCOCK 30-0002 PT	FISK TRANSFER STATION 266 SOUTH FRANKLIN STREET MR DENNIS FISK	SW 253 30-2 11/01/94	FISK SANITATION SERVICE FISK SANITATION SERVICE 266 SOUTH FRANKLIN STREET GREENFIELD, IN 46140	317/462-3425 317/462-3425
HANCOCK 30-0003 PT	MT.COMFORT TRANSFER STATION 2751 NORTH 600 WEST MT. COMFORT RD. MR. RICK CURTIS	SW 356 30-3 00/00/00	MR. JOHN BALKEMA RANDOLPH FARMS, INC. R. R. 1, BOX 76 MODOC, INDIANA 47358	317/853-5714 317/894-8426
HARRISON 31-0002 PT	GRAYS DISPOSAL SERVICE TRANSFER STATION 2 MILES SOUTH OF CORYDON ON SR 237 MR. GREG ALBERS	SW 339 31-2 07/01/94	MR. ROBERT E. LEE WASTE MANAGEMENT P. O. BOX 19380 LOUISVILLE, KENTUCKY 40219	502/969-2355 812/738-8393
HENDRICKS 32-0002 PL	DANVILLE LANDFILL CR 75 S, 1/2 MILE W OF CR 150 E MR LARRY WRIGHT	SW 15 32-2 00/00/00	A SUBDRY OF WST MNGT, INC DANVILLE SANITARY LANDFILL INC. 135 TWIN BRIDGE RD DANVILLE, IN 46122	317/745-2878 317/745-2878
HENRY 33-0001 PL	HAYES LANDFILL OLD SPICELAND RD AND CR 125 W MR FRANK HAYES	SW 75 33-1 00/00/00	MR FRANK HAYES MR FRANK HAYES RR 2, BOX 71 NEW CASTLE, IN 47362	317/529-0287 317/529-0287
HOWARD 34-0002 ML	GREENTOWN LANDFILL SR 213, 2 MILES S OF GREENTOWN MR PHIL HOOD	SW 143 34-2 00/00/00	BOARD OF TRUSTEES GREENTOWN BOARD OF TRUSTEE TOWN HALL GREENTOWN, IN 46936	317/628-7822
HOWARD 34-0004 PT	CENTRAL WASTE SYSTEMS TRANSFER STATION 740 N OHIO ST KOKOMO MR RICHARD MAUMAN	SW 205 34-4 00/00/00	CENTRAL WASTE SYSTEMS MR RICHARD MAUMAN 740 NORTH OHIO STREET KOKOMO, IN 46901	317/459-8053 317/459-8053
HUNTINGTON 35-0001 ML	HUNTINGTON CITY LANDFILL CR 300 W, 1/2 MILE S OF SR DIVISION RD MR. RICHARD NESS	SW 16 35-1 00/00/00	CITY OF HUNTINGTON HON. MAURICE B. ROBBINS, MAYOR CITY HALL HUNTINGTON, IN 46750	219/356-2926 219/375-3346

COUNTY REGISTRANT NR. FACILITY TYPE	NAME OF FACILITY LOCATION OF FACILITY SITE CONTACT	CPP PERMIT OPP PERMIT EXPIRES	RESPONSIBLE PARTY(RP) ADDRESS	RP PHONE SITE PHONE
JACKSON 36-0001 PL	RUMPKE (MELDORA) LANDFILL CR 870 W, S OF US 50 MR DENVER AULT	SW 73 36-1 12/01/91	MR. THOMAS B RUMPKE MR THOMAS B RUMPKE 10795 HUGHES ROAD CINCINNATI, OH 45251	513/851-0122 812/966-2017
JACKSON 36-0003 PL	UNIONTOWN LANDFILL US 31-1 MILE S OF UNIONTOWN MR. THOMAS WILCUTT	SW 37 36-3 00/00/00	MR. THOMAS B RUMPKE MR. THOMAS B RUMPKE 10795 HUGHES RD. CINCINNATI, OH 45251	513/851-0122 812/793-3550
JASPER 37-0001 R2	SCHAHFER FGD SLUDGE LANDFILL 2 MILES NE OF WHEATFIELD KEVEN HOGE	SW 282 37-1 09/01/94	NORTHERN IN PUBLIC SERV CO MR MARK T. MAASSEL 5265 HOHMAN AVENUE HAMMOND, IN 46320	219/853-5343 219/956-5162
JASPER 37-0002 PT	OOMS BROTHERS DISPOSAL TRANSFER STATION FORSYTHIA STREET DEMOTTE, IN MR. KEVIN OOMS	SW 345 37-2 00/00/00	MR. KEVIN OOMS MR. KEVIN OOMS, OOMS BROS. DISPOSAL P.O. BOX 706 DEMOTTE, IN 46310	219/987-5313
JAY 38-0001 PL	JAY COUNTY LANDFILL CR 140, 1/10 MILE E OF SR 67 MR MIKE LUKEN	SW 322 36-1 00/00/00	MR CHRIS WHITE 0443 WEST 1000 NORTH OSSIAN IN, 46777	317/638-4568 317/726-2871
JEFFERSON 39-0002	JEFFERSON PROVING GROUND SOLID FILL SITE WEST PERIMETER RD, 5 MILES NW OF MADISON MR KAUSHIK JOSHI	SW 273 39-2 00/00/00	OFFICE OF COMMANDER US ARMY JEFFERSON PROVING GRD MADISON, IN 47250	812/273-7303 812/273-7303
JEFFERSON 39-0003 MT	MADISON CITY TRANSFER STATION IVY TECH DRIVE 3 MILES EAST OF SR 7 MR GREG BENTZ	SW 317 39-3 08/01/94	HON. MARK LYTLE MAYOR HON. MORRIS WOODEN, MAYOR CITY HALL MADISON, IN 47250	812/265-2146 812/273-5080
JEFFERSON 39-0004 AM	CLIFTY CREEK COAL ASH DISPOSAL LANDFILL STATE ROAD 56, THREE MILES WEST OF MADISON MR BILL MAYBERRY	SW 346 39-4 00/00/00	MR RALPH DUNLEVY INDIANA-KENTUCKY ELECTRIC CORP. PO BOX 468 PIKETON, OHIO 45661	614/289-2376 812/265-8700

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JENNINGS 40-0002 PL	JENNINGS COUNTY LANDFILL CR 175N, 3.5 MILES W OF SR7 MS EMMIJEAN WOLFE	SW 184 40-2 00/00/00	MS EMMIJEAN WOLFE MR WALTER WOLFE RR #4 NORTH VERNON, IN 47265	812/346-5298 812/346-1788
JOHNSON 41-0002 MT	WASTE MANAGEMENT-FRANKLIN TRANSFER STATION US 31, 2 MILE N OF FRANKLIN MR MITCH HOBAN	SW 245 41-2 12/01/94	MR. STEVE MEYER, VP INDIANA WASTE SYSTEMS, INC. 17250 NEWBURGH ROAD LIVONIA, MICHIGAN 48152	313/462-6900 317/635-2491
JOHNSON 41-0003 MT	EDINBURGH TRANSFER STATION EDINBURGH WW TREATMENT PLANT MR BILL MEAD	SW 247 41-3 07/15/94	TOWN OF EDINBURGH TOWN OF EDINBURGH 107 SOUTH HOLLAND STREET EDINBURGH, IN 46124	812/526-6333 812/526-6070
KNOX 42-0003 PT	BIG T TRANSFER STATION 1640 NORTH 6TH STREET MR GARY SIMMONS	SW 267 42-3 00/00/00	BIG T TRASH COMPANY MR GARY SIMMONS P O BOX 707, 1640 N 6TH STREET VINCENNES, IN 47591	812/882-2400 812/882-2400
KNOX 42-0004 ML	EDWARDS LANDFILL 3 MILES SOUTHWEST OF BICKNELL 1/2 MILE EAST AT WATER TOWER MR. CARR THOMAS	SW-293 42-4 00/00/00	KNOX CO. COMMISSIONERS KNOX COUNTY COMMISSIONERS COURTHOUSE VINCENNES, IN 47591	812/882-2884 812/735-4862
KNOX 42-0005 MT	CITY OF VINCENNES TRANSFER STATION 1118 RIVER RD (WASTEWATER PLANT) VINCENNES, INDIANA	SW 362 42-5 12/01/90	CITY OF VINCENNES CITY OF VINCENNES CITY BUILDING VINCENNES, INDIANA 47591	
KOSCIUSKO 43-0001 PL	RANSBOTTOM LANDFILL CR 800 S, 1/4 MILE E OF CR 200 E PACKERTON MR DAN RANSBOTTOM	SW 34 43-1 00/00/00	RANSBOTTOM SANITARY LF MR DAN RANSBOTTOM R R 2 CLAYPOOL, IN 46510	219/566-2932 219/839-0300
KOSCIUSKO 43-0005 PT	WASTE MANAGEMENT OF WARSAW TRANSFER STATION WARSAW AIRPORT INDUSTRIAL PARK MR TED SCHOELOFF	SW 259 43-5 00/00/00	WASTE MGMT OF WARSAW MR GREG PURVIS P O BOX 1789 WARSAW, IN 46580	219/749-9689 219/269-3635

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KOSCIUSKO 43-0006 R2	ALTERNATE SITE MONOFILL (RWS TYPE II) SR 25 AT CR 300 WEST MR JOHN KIMPEL	SW 338 43-6 00/00/00	DALTON FOUNDRY, INC DALTON FOUNDRY, INC LINCOLN & JEFFERSON ST PO BOX 1388 WARSAW, IN 46580	219/267-8111
LAGRANGE 44-0002 ML	LAGRANGE COUNTY LANDFILL CR 300 S, 1/2 MILE E OF CR 00 LAGRANGE COUNTY COMMISS.	SW 18 44-2 00/00/00	LAGRANGE CO. COMMISSION LAGRANGE COUNTY COMMISSIONERS COURTHOUSE LAGRANGE, IN 46761	219/463-2183 219/463-3110
LAGRANGE 44-0003 PT	SCOTT RECYCLING FACILITY ST JOE STREET, SCOTT MR GREGORY A SEYBERT	SW 273 44-3 10/01/94	BACKHAULERS, INC MR GREGORY A SEYBERT R R 1 BOX 305 SHIPSHEWANA, IN 46565	219/768-4580 219/768-4580
LAKE 45-0001 ML	MUNSTER LANDFILL CALUMET AVE, 5 BLOCKS S OF 45TH AVENUE MR JOHN WAGNER	SW 323 45-1 00/00/00	JAMES MANDON-DIR PUB WRKS CITY OF MUNSTER TOWN HALL 1005 RIDGE ROAD MUNSTER, IN 46321	219/836-8810 219/924-1526
LAKE 45-0005 ML	GRIFFITH LANDFILL INTERSECTION OF S COLFAX AVE REDER RD AND S ARBOGAST AVE MR ORVILLE HUFF	SW 197 45-5 00/00/00	JOHN BACH,DIR PUBLIC WRKS C/O MR JOHN BACH, DIR PUBLIC WORKS 111 NORTH BROAD STREET GRIFFITH, IN 46319	219/924-7500 219/924-5665
LAKE 45-0008 CD	FEDDELER SOLID FILL SITE SR 2, 1/2 MILE E OF US 41 MR EDWARD FEDDELER	SW 251 45-8 00/00/00	MR EDWARD FEDDELER MR EDWARD FEDDELER 21827 AUSTIN LOWELL, IN 46356	219/696-8406 219/696-8021
LAKE 45-0010 PT	SANITATION SERVICE TRANSFER STATION 1025 E SUMMIT CROWN POINT, IN MR JAY RUSTHOVEN	SW 265 45-10 00/00/00	SANITATION SERVICE INC MR JAY RUSTHOVEN P O BOX 596 CROWN POINT, IN 46307	319/769-8940 219/769-8940
LAKE 45-0012 PS	A.S.K. SHREDDER 415 151ST STREET, EAST CHICAGO MR. NATHAN APPLE	SW 340 45-12 00/00/00	MR. NATHAN APPLE, PRES. A.S.K. SHREDDERS CORP. 415 151ST STREET EAST CHICAGO, IN 46312	219/397-0877

COUNTY / REGISTRANT NR. / FACILITY TYPE	NAME OF FACILITY / LOCATION OF FACILITY / SITE CONTACT	CPP PERMIT / OPP PERMIT / EXPIRES	RESPONSIBLE PARTY(RP) / ADDRESS	RP PHONE / SITE PHONE
LAKE 45-0013 PT	WASTE MGMT OF NW IND RECYCLE FACILITY 7337 WEST 15TH AVE, GARY, IN (FORMERLY CALUMET W SYS) MR. DON BETHEL	SW 351 45-13 00/00/00	MR. DON BETHEL WASTE MGMT OF NW IND, P.O. BOX 250 PORTAGE, IN 46368	219/932-2791 219/932-2791
LAKE 45-0014 PT	ILLIANA RESOURCE RECOVERY AND TRANSFER 1155 BIRCH DRIVE, SCHERERVILLE MR DOUG HAAN	SW 363 45-14 00/00/00	MR DOUG HAAN ILLIANA DISPOSAL SERVICE, INC P.O. BOX 1599 HIGHLAND, IN 46322	219/865-3034 219/865-3034
LAKE 45-0015 CC	AMOCO OIL CO CONTAINER COLLECTION SYSTEM AMOCO BOAT DOCK FACILITY WHITING, IN 46394 MS VANESSA L SLOCUM	RULE 45-15 00/00/00	AMOCO OIL CO AMOCO OIL CO PO BOX 710 WHITING, IN 46394	219/473-3610 219/473-3610
LAPORTE 46-0001 ML	LAPORTE COUNTY RECYCLING & DISPOSAL FACILITY 1/2 MILE W OF US 421 ON CR 300 N MR CLAIR HOEKSEMA	SW 225 46-1 00/00/00	LAPORTE COUNTY LANDFILL WASTE MGMT MIDWEST REGION 2 WESTBROOK CORP SUITE 1000 P087070 WESTCHESTER, IL 60153	708-572-8800 219/879-4653
LAWRENCE 47-0002 ML	LAWRENCE COUNTY LANDFILL 3 MILES S OF BEDFORD ON CR 250 S MR DAVEY VAUGHT	SW 271 47-2 00/00/00	LAWRENCE CO. COMMISSIONER LAWRENCE COUNTY COMMISSIONER LAWRENCE CTY COURTHOUSE BEDFORD, IN 47451	812/275-2644 812/279-6159
LAWRENCE 47-0003 CC	LAWRENCE CO COLLECTION CONTAINER SYSTEM HALF MOON BEACH WILLIAMS DAM SILVERVILLE NEEDMORE HELTONVILLE MR. DAVEY VAUGHT	RULE 47-3 00/00/00	LAWRENCE CO COMMISSIONERS LAWRENCE CO. COMMISSIONERS LAWRENCE CO COURTHOUSE BEDFORD, IN 47451	812/275-2644 812/279-6159
MADISON 48-0001 ML	MADISON COUNTY LANDFILL CR 1100 N, 2 1/2 MILES W OF ALEXANDRIA GERALD THOMAS	SW 188 48-1 00/00/00	MADISON CO. COMMISSIONERS MADISON COUNTY COMMISSIONERS MADISON CTY GOV CENTER ANDERSON, IN 46011	317/643-8665 317/724-9082
MADISON 48-0002 CD	INDUSTRIAL REMOVAL SOLID FILL SITE CR 200 E, 1 MILE S OF TENTH ST ANDERSON MR BARRY COPE	SW 207 48-2 00/00/00	MR J R PHILLIPS INDUSTRIAL REMOVAL, INC 1515 EAST 22ND STREET ANDERSON, IN 46011	317/644-8179

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MADISON 48-0004 PT	MADISON AVENUE TRANSFER STATION 1-69 & MADISON AVENUE ANDERSON MR GARY FINE	SW 289 48-4 00/00/00	MR JOHN BALKEMA MR JOHN BALKEMA 2314 MILLER ROAD KALAMAZOO, MI 49001	616-349-8627 317/853-5714
MADISON 48-0005 PT	DULWORTH TRANSFER STATION 6328 SOUTH COLUMBUS AVENUE MR M V DULWORTH	SW 290 48-5 11/01/94	MR M V DULWORTH 924 CATALPA ANDERSON, IN 46013	317/644-8796 317/644-8983
MARION 49-0001 PL	SOUTH SIDE LANDFILL 2561 KENTUCKY AVENUE MR JOHN COOK	SW 17 49-1 10/01/91	SOUTH SIDE LANDFILL, INC MR JOHN BALKEMA 2314 MILLER ROAD KALAMAZOO, MI 49001	616/349-8627 317/247-6808
MARION 49-0003 PL	FT BENJAMIN HARRISON LANDFILL GLENN RD AND OTIS AVE MS. MARY ELLEN SULLIVAN	SW 231 49-3 11/01/90	COMMANDER COMMANDER FORT BENJAMIN HARRISON INDIANAPOLIS IND. 46216	317/549-5387 317/549-5449
MARION 49-0004 ML	SPEEDWAY LANDFILL 4251 W VERMONT STREET MR JOHN SEMENICK	SW 219 49-4 05/01/94	MR. R. J. SHAMBAUGH, PRES SPEEDWAY TOWN BOARD 1450 NORTH LYNHURST DRIVE SPEEDWAY, IN 46224	317/241-2566 317/248-1446
MARION 49-0006 PT	LANGSDALE AVE RECYCLING & TRANSFER STATION 832 LANGSDALE AVENUE INDIANAPOLIS TOM HAGEMAN	SW 284 49-6 00/00/00	LARRY J SCHUCHMAN LARRY J SCHUCHMAN 10613 WINTERWOOD AVENUE CARMEL, IN 46032	317/926-5492 317/925-5492
MARION 49-0007 PT	WASTE MANAGEMENT TRANSFER STATION 3200 WEST BERTHA STREET MR. MITCH HOBAN	SW 304 49-7 00/00/00	WASTE MGMT OF INDPLS 3200 WEST BERTHA STREET INDIANAPOLIS, IN 46222	317/635-2491 317/635-2491
MARION 49-0009 CD	DORSEY PAVING SOLID FILL SITE 2105 S HARDING INDIANAPOLIS, IN MR. DONALD DORSEY	SW 140 49-9 07/01/91	MR. DONALD DORSEY MR. DONALD DORSEY 2105 S HARDING INDIANAPOLIS, IN 46221	317/638-9326

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MARION 49-0010 PT	96 TH STREET TRANSFER STATION 4935 ROBISON ROAD, INDIANAPOLIS MR. STEVE CLARK	SW 350 49-10 00/00/00	MR LARRY SCHUCHMAN SMI RECYCLING AND DISPOSAL, INC. 832 LANGSDALE AVE. INDIANAPOLIS, IND. 46202	317/926-5492 317/872-5492
MARION 49-0012 AM	BELMONT ASH MONOFILL-PERMANENT 2700 SOUTH BELMONT AVENUE INDIANAPOLIS, INDIANA	SW-365 49-12 12/01/90	MS. SARA GUSS INDIANAPOLIS DEPT OF PUBLIC WORKS 2460 CITY-COUNTY BUILDING INDIANAPOLIS, INDIANA 46204	317-236-4876 317-432-7287
MARION 49-0013 IP	INDIANAPOLIS RESOURCE RECOVERY FACILITY 2320 SOUTH HARDING STREET INDIANAPOLIS, INDIANA 46221 MR. NED HILLERS	49-13 06/01/91	CAROLINE G. NAGGE OGDEN-MARTIN SYSTEMS OF INDPLS, INC 40 LANE ROAD FAIRFIELD, NJ 07007-2615	201/882-7060 317/634-7367
MARION 49-0014 MP	MEDICAL SAFE-TEC, INC. 1508 NORTH CAPITOL INDIANAPOLIS, INDIANA	NA 49-14 06/01/94	MR. HERB ANDERSON MEDICAL SAFE-TEC, INC. 5610 WEST 82ND STREET INDIANAPOLIS, INDIANA 46278	317/879-8080 317/924-1814
MARTIN 51-0002 PL	CRANE NWSC LANDFILL OFF JCT HS & H101, 5 MI SW CRANE NWSC PROPERTY DEPARTMENT OF THE NAVY	SW 239 51-2 00/00/00	MR PHIL KEITH COMMANDING OFFICER DEPT OF THE NAVY CRANE, IN 47522	812/854-3114
MARTIN 51-0004 CD	CRANE NWSC SOLID FILL SITE OFF JCT HS & H101, 5 MI SW CRANE NWSC PROPERTY DEPARTMENT OF THE NAVY	SW 318 51-4 00/00/00	COMMANDING OFFICER NAVAL WEAPONS SUPPORT CENTER CRANE, IN 47522	812/854-3114 812/854-3114
MIAMI 52-0002 PL	T. H. LANDFILL CR 550 N, 1/2 MILE E OF SR 19 MR GENE STACY	SW 23 52-2 08/01/91	MR JOHN HOFFMAN T. H. LANDFILL CO, INC 1000 CRAWFORD PLACE-SUITE 101 MT LAUREL, NJ 08054	609-231-1121 317/985-2812
MONROE 53-0001 PT	WASTE MANAGEMENT-BLOOMINGTON TRANSFER STATION SR 37, 1/2 MILE S OFF DILLMAN RD, BLOOMINGTON MR. MITCH HOBAN	SW 285 53-1 00/00/00	MR. STEVE MEYER, VP INDIANA WASTE SYSTEMS, INC. 17250 NEWBURGH ROAD LIVONIA, MICHIGAN 48152	313/462-6900 317/635-2491

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MONROE 53-0002 SS	DILLMAN ROAD WASTEWATER TPMT. PLT. LANDFILL 100 WEST DILLMAN ROAD BLOOMINGTON, INDIANA MR BILL BARDES	SW 277 53-2 00/00/00	CITY BLOOMINGTON UTILITY MR MIKE PHILLIPS P O BOX 1216 BLOOMINGTON, IN 47402	812/339-1444 812/824-4900
MONROE 53-0003 ML	MONROE COUNTY (ANDERSON ROAD) LANDFILL 8 MILES NE OF BLOOMINGTON ON ANDERSON ROAD MR JIM CONLEY	SW 46 00/00/00	MONROE CO SOLID WAST DIST MONROE COUNTY SOLID WASTE DISTRICT COURTHOUSE BLOOMINGTON, IN 47401	812/333-3867 812/339-6993
MONROE 53-0004 CC	MONROE COUNTY COLLECTION CONTAINER SYSTEM MONROE COUNTY	RULE 53-4 00/00/00	MONROE CO SOLID WAST DIST MONROE CO SOLID WASTE DISTRICT COURTHOUSE BLOOMINGTON, INDIANA 47401	812/333-3867
MONTGOMERY 54-0002 PT	CRAWFORDSVILLE TRANSFER STATION GARDEN & BLUFF STREETS CRAWFORDSVILLE MR GARY DOCKINS	SW 297 54-2 00/00/00	MID-AM WS SYS OF IND, INC CRAWFORDSVILLE TRANSFER STATION 518 BLUFF STREET CRAWFORDSVILLE, IN 47933	614/833-9155 317/362-8394
MORGAN 55-0003 MT	MARTINSVILLE TRANSFER STATION BLUE BLUFF ROAD MR ABE WALLS	SW 254 55-3 03/01/95	CITY OF MARTINSVILLE MAYOR PHIL DECKARD P O BOX 1415 MARTINSVILLE, IN 46151	317/342-6110
NOBLE 57-0002 PT	KENDALLVILLE IRON & METAL INC. CR 415 NORTH AND SR 3 MR GARY SPIDEL	57-2 12/01/94	MR GARY SPIDEL KENDALVILLE IRON AND METAL INC. P O BOX 69 KENDALVILLE, IN 46755	219/347-1958 219/347-1958
ORANGE 59-0003 PT	WOLFE TRANSFER STATION 3/4 MI N OF US 150 ON CR 275W MR JAMES A WOLFE	SW 349 59-3 00/00/00	MR JAMES A WOLFE MR JAMES A WOLFE ROUTE 2, BOX 130 PAOLI, IN 47454	812/723-2727 812/723-5158
ORANGE 59-0004 PT	ORANGE CO TRANSFER STATION CR 700 N, ONE MILE WEST OF ORLEANS GARY CLARK	SW 364 59-4 01/01/91	THOMAS RUMPKE RUMPKE OF INDIANA, INC. 10795 HUGHES ROAD CINCNNATI, OHIO 45251	513/851-0122 812/865-3400

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OWEN 60-0002 ML	OWEN COUNTY LANDFILL CR 1035 W (BYERLY RD) 3/8 MILE S OF PATRICKSBURG MR DALE DUBOIS	SW 218 60-2 00/00/00	OWEN COUNTY COMMSSIONERS COURTHOUSE SPENCER, IN 47460	812/829-2260 812/859-4772
PIKE 63-0002 SS	PETERSBURG GENERATION STATION 4 MILES N E OF PETERSBURG STEVE WOLSIFFER	SW280 63-2 03/01/91	MR TERRY HOGAN INDPLS POWER AND LIGHT P O BOX 1595B INDIANAPOLIS, IN 46206	317/261-8261 812/354-8801
PIKE 63-0003 ML	PIKE COUNTY SANITARY LANDFILL 11 CR 50 S 1/2 MILE EAST OF 475 E MR TOM DEEN	SW 301 63-3 00/00/00	PIKE COUNTY COMMISSIONERS PIKE COUNTY COMMISSIONERS PIKE COUNTY COURTHOUSE PETERSBURG, IN 47567	812/789-2933 812/354-9743
PIKE 63-0004 PL	ROSE DISP SERVICES LANDFILL (BLACKFOOT LF) 2.5 MILES SOUTHEAST OF ARTHUR, IN MR MIKE SCHRANER	344 63-4 08/01/91	CHARLES K. BROWN ROSE DISPOSAL SERVICES, INC. RR 1, BOX K LYNNVILLE, INDIANA 47619	812/922-3226 812/789-2230
PIKE 63-0005 CC	PIKE COUNTY COLLECTION CONTAINER SYSTEM PIKE COUNTY	RULE 63-5 00/00/00	PIKE COUNTY COMMISSIONERS PIKE COUNTY COMMISSIONERS COURTHOUSE PETERSBURG, INDIANA 47567	812/789-2933
PORTER 64-0003 PL	WHEELER RECYCLING AND DISPOSAL FACILITY JONES ROAD AND SR 130 MR GENE SURPRENANT	SW 193 64-3 00/00/00	WHEELER RECYLC & DISP FAC IN WASTE SYSTEMS, INC PO BOX 181 WHEELER, IN 46393	708-572-8800 219/759-5471
PORTER 64-0004 R4	YARD 520 SOLID FILL SITE US 20 & US 520 MR BARRY D BROWN	SW 287 64-4 00/00/00	MR BARRY D BROWN 720 WEST US HWY 20 MICHIGAN CITY, IN 46360	219/872-8618 219/762-3178
PORTER 64-0005 PT	WASTE MGMT OF NW IND RECYCLE FACILITY 1035 NORTH HIGHWAY 149, VALPARAISO (FORMERLY INDIANA SANITATION) MR. DONALD BETHEL	SW 353 64-5 00/00/00	MR. DONALD BETHEL WASTE MGMT OF NW IND P.O. BOX 250 PORTAGE, IN 46368	219/763-2502 219/932-2790

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PORTER 64-0006 PT	ABLE DISPOSAL RECYCLING AND TRANSFER STATION 809 WALBASH CHESTERTON MR WILLIAM MEYER	SW 359 64-6 00/00/00	MR WILLIAM MEYER MEYERS WASTE SYSTEMS, INC. ABLE DISPOSAL-P O BOX 911 CHESTERTON IN 46304	 219-926-1046
POSEY 65-0005 PL	MCCARTY'S LANDFILL SR 62 AND CR 300 W 5 MILES W OF MT VERNON MR CARL MCCARTY	SW 158 65-5 00/00/00	MCCARTY'S LANDFILL, INC. MR CARL MCCARTY P O BOX 428 MOUNT VERNON, IN 47620	812/838-3814 812/838-6779
POSEY 65-0006 PL	SPRINGFIELD LANDFILL SOLID FILL SITE SR 69, 6 MILES N OF MT VERNON MR. RUSSELL LAMPING	SW 228 65-6 00/00/00	RUSSELL LAMPING 7933 TELEPHONE ROAD NEWBURGH, IN 47630	812/422-8330 812/838-0040
POSEY 65-0007 PL	SIGECO FILTER CAKE DISPOSAL SITE-A B BROWN A B BROWN GENERATING STATION PROPERTY 10 M SW OF EVANSVILLE LANCY HOLM EXT 225	SW 211 65-7 00/00/00	SOUTHERN IN GAS & ELE CO MR NORMAN P WAGNER, V P 20-24 NORTHWEST FOURTH STREET EVANSVILLE, IN 47741	812/424-6411 812/464-4769
POSEY 65-0008 IP	GENERAL ELECTRIC ULTEM THERM. OXIDIZER SYSTEM GE PLASTICS PLANT SITE LEXAN LANE, MT. VERNON, INDIANA MR CHARLIE MAYER	SW 354 65-8 08/01/90	MR. JOHN DAGUE GE PLASTICS LEXAN LANE MT. VERNON, IN 47620-9364	812/831-7563
POSEY 65-0009 IP	GENERAL ELECTRIC SOLID WASTE INCINERATOR GE PLASTICS PLANT SITE LEXAN LANE, MT. VERNON, INDIANA MR. CHARLIE MAYER	SW 313 65-9 04/01/90	MR. JOHN DAGUE GE PLASTICS LEXAN LANE MT. VERNON, IN 47620-9364	812/831-7563 812/831-7757
PULASKI 66-0002 MT	PULASKI COUNTY TRANSFER STATION CR 50 WEST AND ALLEN STREET MR BILL KRAHN	SW 264 66-2 00/00/00	PULASKI COUNTY COMMISSIONERS PULASKI COUNTY COURTHOUSE WINAMAC, IN 46996	219/946-3653 219/946-4358
PUTNAM 67-0003 PT	BAKER'S REMOVE-ALL TRANSFER STATION 1 MILE W OF GREENCASTLE ON COLUMBIA STR MR RALPH JONES	SW 342 67-3 12/01/94	MR RALPH JONES REFUSE HANDLING SERVICES P O BOX 718 GREENCASTLE, INDIANA 46135	317/653-3902 317/653-3902

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RANDOLPH 68-0001 PL	RANDOLPH FARMS LANDFILL CR 600 S, 1/2 MILE E OF SR 1 HAROLD VLIETSTRA	SW 142 68-1 00/00/00	MR JOHN BALKEMA MR JOHN BALKEMA 2314 MILLER ROAD KALAMAZOO, MI 49001	616/349-8627 317/853-5714
RIPLEY 69-0001 PL	RUMPKE LANDFILL-MILAN CR 700 N, 1/2 MILE W OF SR 101 MR PAUL JOHNSON	SW 324 69-1 00/00/00	MR THOMAS B RUMPKE 10795 HUGHES ROAD CINCINNATI, OH 45251	513/851-0122 812/654-2015
RUSH 70-0002 CC	RUSH COUNTY COLLECTION CONTAINER SYSTEM RUSH COUNTY	RULE 70-2 00/00/00	RUSH COUNTY COMMISSIONERS RUSH COUNTY COMMISSIONERS COURTHOUSE RUSHVILLE, INDIANA 46173	
SAINT JOSEPH 71-0002 PL	PRAIRIE VIEW LANDFILL SHIVELY ROAD 3 MILES S OF WYATT MR CHARLES HARTSELL	SW 250 71-2 00/00/00	MR JAMES A DAVIS INDIANA WASTE SYSTEMS, INC P O BOX 17 DANVILLE IN 46122	708/572-8800 219/546-4475
SAINT JOSEPH 71-0003 CD	DONNELL INC SOLID FILL SITE 27411 KLINE TRAIL SOUTH BEND MR BRUCE MCMILLEN	SW 336 71-3 07/01/94	MR BRUCE MCMILLEN DONNELL, INC 26086 U S 20 SOUTH BEND, IN 46628	219/233-7466 219/233-7466
SHELBY 73-0001 PL	CALDWELL LANDFILL CR 300 E, 1 MILE N OF US 52 MR DANA CALDWELL	SW 325 73-1 00/00/00	MR DANA CALDWELL BOX 212 MORRISTOWN, IN 46161	317/763-6258 317/763-1238
SHELBY 73-0004 MT	SHELBY COUNTY TRANSFER STATION OLD 421 AND SR 9 MR DALLAS PHILLIPS	SW 288 73-4 02/01/95	SHELBY CO. COMMISSIONER ROOM 107 COURTHOUSE SHELBYVILLE, IN 46176	317/398-8306 317/398-8306
SPENCER 74-0001 PL	SPENCER COUNTY SANITARY LANDFILL 2 MILES E-SE OF NEWTONVILLE MR CHARLES BROWN	SW 286 74-1 00/00/00	AMERICAN DISP-MIN CO INC MR CHARLES BROWN P O BOX 157 LYNNVILLE, IN 47619	812/922-3226 812/362-8709

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SPENCER 74-0002 AM	ROCKPORT PLANT ASH LANDFILL I & M POWER PLANT PROPERTY U S 231 3 MILES NORTH OF ROCKPORT MR JIM BUTCHER	SW 311 74-2 00/00/00	MR R. C. MENGE MR R C MENGE, VICE PRES IND & MICH ELECTRIC PO BOX 60 FORT WAYNE, IND	219/425-2118 812/649-9171
SPENCER 74-0003 CC	SPENCER COUNTY COLLECTION CONTAINER SYSTEM SPENCER COUNTY	RULE 74-3 00/00/00	SPENCER CO COMMISSIONERS SPENCER CO. SANITATION DEPARTMENT COURTHOUSE BUILDING ROCKPORT, INDIANA 47635	812/649-4376
STEUBEN 76-0003 PT	SUNRISE TRANSFER AND RECYCLING CENTER 1201 WOHLERT STREET, ANGOLA MR CHUCK WALBRIDGE	SW 281 76-3 00/00/00	MR CHUCK WALBRIDGE SUNRISE DISPOSAL, INC 6231 MCBETH ROAD FT WAYNE, IN 46809	219/747-4110 219-665-7031
SULLIVAN 77-0001 ML	SULLIVAN COUNTY LANDFILL CR 50 N, 3 MILES E OF SULLIVAN MR GARY STOUL	SW 98 77-1 00/00/00	SULLIVAN CO. COMMISSIONER SULLIVAN COUNTY COMMISSIONERS COURTHOUSE SULLIVAN, IN 47882	812/268-4491 812/268-6814
SULLIVAN 77-0003 SS	MEROM STATION LANDFILL MEROM STATION PROPERTY 3 MILES E OF MEROM MR. THOMAS BANNER	SW 241 77-3 01/01/91	HOOSIER ENERGY DIVISION HOOSIER ENERGY DIVISION P O BOX 908 BLOOMINGTON, IN 47402	812/876-2021 812/356-4291
SWITZERLAND 78-0002 CD	WHISKEY HOLLOW SOLID FILL SITE SR 56, 5 MILES W OF VEVAY MR PETE MATHEWS	SW 229 78-2 00/00/00	VEVAY TOWN BOARD BOX 52 VEVAY, IN 47043	812/427-3131 812/427-3338
TIPPECANOE 79-0002 PT	WASTE MGMT OF LAFAYETTE RECOVERY PLANT 2120 WABASH AVE LAFAYETTE, IN 47905 MR WARREN TAYLOR	SW 319 79-2 00/00/00	INDIANA WASTE SYSTEMS INC INDIANA WASTE SYSTEMS, INC. P O BOX 563 7300 W COLLEGE DRIVE PALOS HEIGHTS, IL 60463	312/821-8100 317/474-4432
TIPPECANOE 79-0003 PT	TIPPECANOE CO. SW TRANSFER/RECYCLING STATION 2770 NORTH NINTH ST. LAFAYETTE, IN MR. WARREN TAYLOR	79-3 02/01/95	MR. WARREN TAYLOR WASTE MGMT. OF LAFAYETTE P. O. BOX 4579 LAFAYETTE, IN 47903	317/474-4432 317/474-4432

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TIPTON 80-0001 ML	TIPTON COUNTY LANDFILL CR 300 S, 2 MILES E OF SR 19 MOHR CONSTRUCTION CO	SW 173 80-1 00/00/00	TIPTON COUNTY COMMISSIONERS COURTHOUSE TIPTON, IN 46072	317/675-8741
UNION 81-0002 MT	UNION COUNTY TRANSFER STATION 3 MILES NE OF LIBERTY ON CR #100 EAST MR TERRY CHEWNING	SW 315 81-2 08/01/94	UNION COU COMMISSIONERS COURTHOUSE LIBERTY, IN 47353	317/458-5464 317/458-6757
VANDERBURGH 82-0002 PL	LAUBSCHER MEADOWS LANDFILL LAUBSCHER ROAD, 1/2 MILE E OF ST JOSEPH AVENUE MR ERV LEIDOLF	SW 220 82-2 07/01/94	BROWNING-FERIS INDUS,IN I MR HAROLD POST P O BOX 6390 EVANSVILLE, IN 47719	812/424-3345 812/963-6151
VANDERBURGH 82-0005 CO	CROWE WRECKING COMPANY SOLID FILL SITE 2400 GROVE STREET EVANSVILLE, IN WALTER AND KARL CROWE	SW 330 82-5 01/15/94	WALTER AND KARL CROWE 2400 GROVE STREET EVANSVILLE, IN 477110	812/425-6511 812/425-6511
VERMILLION 83-0002 PL	KANIZER LANDFILL CR 1250 S, 1 MILES W OF SR 63 MR ED KANIZER, II	SW 201 83-2 00/00/00	MR ED KANIZER, II R R 1, BOX 107 CLINTON, IN 47842	317/832-6798 317/832-9836
VERMILLION 83-0007 PL	NEWPORT ARMY AMMUNITION PLANT LANDFILL NEWPORT ARMY PLANT PROPERTY MS LAURA CUNNINGHAM	SW 232 83-7 06/01/92	COMMANDING OFFICER NEWPORT ARMY AMMUNITION PLANT P.O. BOX 121 NEWPORT, IN 47966	317/245-6433 317/245-6274
VERMILLION 83-0008 PL	WEST CLINTON LANDFILL SR 163, 1/2 MILE W OF CENTENARY MR ED KANIZER	SW 238 83-8 00/00/00	MR ED KANIZER, II WEST CLINTON LANDFILL RR 1, BOX 107 CLINTON, IN 47842	317/832-6798 317/832-6798
VERMILLION 83-0009 PL	INLAND CONTAINER 1 1/2 MILE NE OF US 36 AND SR 63 KELSEY, BOB	SW 306 83-9 00/00/00	MR JOHN V WISEMAN INLAND CONTAINER CORP 4030 VINCENNES ROAD INDIANAPOLIS, IN 46268-0937	317/879-4222 317/875-4100

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VIGO 84-0001 PL	COAL BLUFF LANDFILL COAL BLUFF RD, 3/8 MILE N OF RIO GRANDE RD MR TERRY NIECE	SW 120 84-1 00/00/00	MR. CHARLES E. LEONARD LAIDLAW WASTE SYS (TERRE HAUTE),INC 2340 S ARLINGTON HTS RD, SUITE 230 ARLINGTON HEIGHTS, IL 60005	312/439-6686 812/466-1211
VIGO 84-0002 PL	LAIDLAW WASTE SYSTEMS-SOUTH LANDFILL 1/2 MILE S OF OREGON CHURCH RD ON BONO RD, 2 MILES E OF US 41 TERRY NIECE, BOX 868, T H	SW 118 84-2 00/00/00	MR. CHARLES E. LEONARD LAIDLAW WASTE SYS (TERRE HAUTE),INC 2340 S ARLINGTON HTS RD, SUITE 230 ARLINGTON HEIGHTS, IL 60005	312/439-6686 812/466-1211
WABASH 85-0001 PL	WABASH VALLEY LANDFILL SR 13, 1 MILE NE OF WABASH MR GENE STACY	SW 157 85-1 00/00/00	MR JOHN HOFFMAN WABASH VALLEY LANDFILL CO, LTD 1000 CRAWFORD PLACE-SUITE 101 MT LAUREL, NJ 08054	609/231-1121 219/563-8479
WABASH 85-0002 PL	SPRING VALLEY LANDFILL SR 13, 1 MILE NE OF WABASH MR LARRY ROSEMAN	SW 126 85-2 00/00/00	MR LARRY ROSEMAN RLG CORPORATION P O BOX 205 WABASH, IN 46992	219/563-2174 219/563-2174
WABASH 85-0004 R2	FORD METER BOX 775 NORTH MANCHESTER AVE. MR JOHN FLESHER	SW 327 85-4 00/00/00	MR WAYNE E RENNAKER FORD METER BOX 775 N MANCHESTER AVE PO BOX 443 WABASH, IN 46992	219/563-3171 219/563-3171
WARREN 86-0002 ML	WARREN COUNTY LANDFILL 1/2 MILE SE OF CARBONDALE WARREN CO. COMMISSIONERS	SW 268 86-2 00/00/00	WARREN COUNTY COMMISSIONERS WARREN CO. COURTHOUSE WILLIAMSPORT, IN 47993	317/762-3275 317/764-4400
WARREN 86-0003 CD	FLEXEL SOLID FILL SITE U S 136 3 MI W OF COVINGTON MS DENISE COLE	SW 292 86-3 03/01/91	R GUSSMAN OR DENISE COLE FLEXEL CORPORATION US 136 COVINGTON, IN 47932	317/793-2202
WARRICK 87-0003 PL	ALCOA SANITARY LANDFILL SR 66 AND CR 400 W (PLANT PROPERTY) MR JOHN WALKER	SW 199 87-3 07/01/94	MR JOHN WALKER ALCOA-WARRICK OPERATION NEWBURGH, IN 47630	812/853-4917 812/853-4079

COUNTY / REGISTRANT NR. / FACILITY TYPE	NAME OF FACILITY / LOCATION OF FACILITY / SITE CONTACT	CPP PERMIT / OPP PERMIT / EXPIRES	RESPONSIBLE PARTY(RP) / ADDRESS	RP PHONE / SITE PHONE
WARRICK 87-0004 SF	F B CULLEY SOLID FILL SITE F B CULLEY STATION PROPERTY MR. GARY GRESS	SW 258 87-4 02/01/90	SOUTHERN IN GAS & ELEC CO MR NORMAN P WAGNER, VP & GEN MGR OP PO BOX 569, 20-24 NORTHWEST 4TH ST EVANSVILLE, IN 47741	812/464-4769 812/464-4769
WARRICK 87-0005 ML	WARRICK CO LANDFILL #2 OLD PELZER RD, 3 MILES SE OF BOONVILLE MR LEROY WINSETT	SW 328 87-5 10/01/90	WARRICK CO. COMMISSIONERS COURTHOUSE BOONVILLE, IN 47601	812/897-6120 812/897-6155
WARRICK 87-0006 MT	WARRICK COUNTY SATELLITE T. S. SYSTEM FOUR SITES-WARRICK COUNTY LEROY WINSETT	SW 343 87-6 00/00/00	WARRICK CO. COMMISSIONERS WARRICK COUNTY COMMISSIONERS COURTHOUSE BOONVILLE, INDIANA 47601	812/897-6120 812/897-6155
WASHINGTON 88-0001 ML	WASHINGTON COUNTY LANDFILL CR 250 N AND CR 150 W 3 1/2 MILES NW OF SALEM MR MIKE GOERING, CO. ENG	SW 36 88-1 00/00/00	MR MIKE GOERING, CO. ENG WASHINGTON COUNTY COMMISSIONERS WASHINGTON CO HIGHWAY DEPT-ANSON ST SALEM, IN 47167	812/883-2431 812/883-4805
WAYNE 89-0002 ML	RICHMOND SANITARY LANDFILL NEW PARIS PIKE AND SR 121 MR RALPH WILLIS	SW 151 89-2 00/00/00	MR RALPH WILLIS RICHMOND SANITARY DISTRICT 451 TEST ROAD RICHMOND, IN 47374	317/962-7956 317/962-7956
WAYNE 89-0003 PT	WAYNE COUNTY TRANSFER STATION SR 1, 1/4 MILE S OF SR 38 MR GARY FINE	SW 204 89-3 00/00/00	MR JOHN BALKEMA WAYNE COUNTY TRANSFER STATION 2314 MILLER ROAD KALAMAZOO, MI 49001	616/349-8627
WELLS 90-0001 PL	NORTH WELLS LANDFILL CR 1000 N, 1/2 MILE W OF MERIDIAN RD MR MIKE LUKEN	SW 326 90-1 00/00/00	MR MIKE LUKEN NORTH WELLS LANDFILL PO BOX 403 OSSIAN IN 46777	219/638-4568 219/638-4568
WELLS 90-0002 PL	WELLS COUNTY LANDFILL (SOUTH) CR 200 W AND CR 400 S MR MIKE McBRIDE	SW 114 90-2 07/01/91	MR CHRIS WHITE WELLS COUNTY LANDFILL (SOUTH) 0443 WEST 1000 NORTH OSSIAN IN, 46777	219/638-4568 219/694-6148

COUNTY REGISTRANT NR. FACILITY TYPE	NAME OF FACILITY LOCATION OF FACILITY SITE CONTACT	CPP PERMIT OPP PERMIT EXPIRES	RESPONSIBLE PARTY(RP) ADDRESS	RP PHONE SITE PHONE
WHITE 91-0004 PL	CHAMBERS LIBERTY LANDFILL SR 119 AND CR 900 E MR WES MAHANEY	SW 270 91-4 02/01/94	CHAMBERS LIBERTY LF INC CHAMBERS LIBERTY LANDFILL, INC R.R. 4, P.O. BOX 403 MONTICELLO, IND. 47960	412/242-6237 219/278-7139

AM - Ash Monofill
CO - Composting Site
CD - Construction/Demolition Site
FM - Foundry Monofill
IP - Incinerator-permitted by approved application
ML - Municipal (or County) Landfill
MP - Medical Waste Processing Facility
MT - Municipal (or County) Transfer Station
PL - Private Landfill
R1 - Restricted Waste Site Type 1
R2 - Restricted Waste Site Type 2
R3 - Restricted Waste Site Type 3
R4 - Restricted Waste Site Type 4
PP - Paper Processing/Recycling Facility
PT - Private Transfer Station
PS - Private Tire Shredding Facility
SS - Scrubber Sludge

Please bring any corrections or additions to the attention of either John Hale (317/232-7195) or Jerry Rud (317/232-7200).

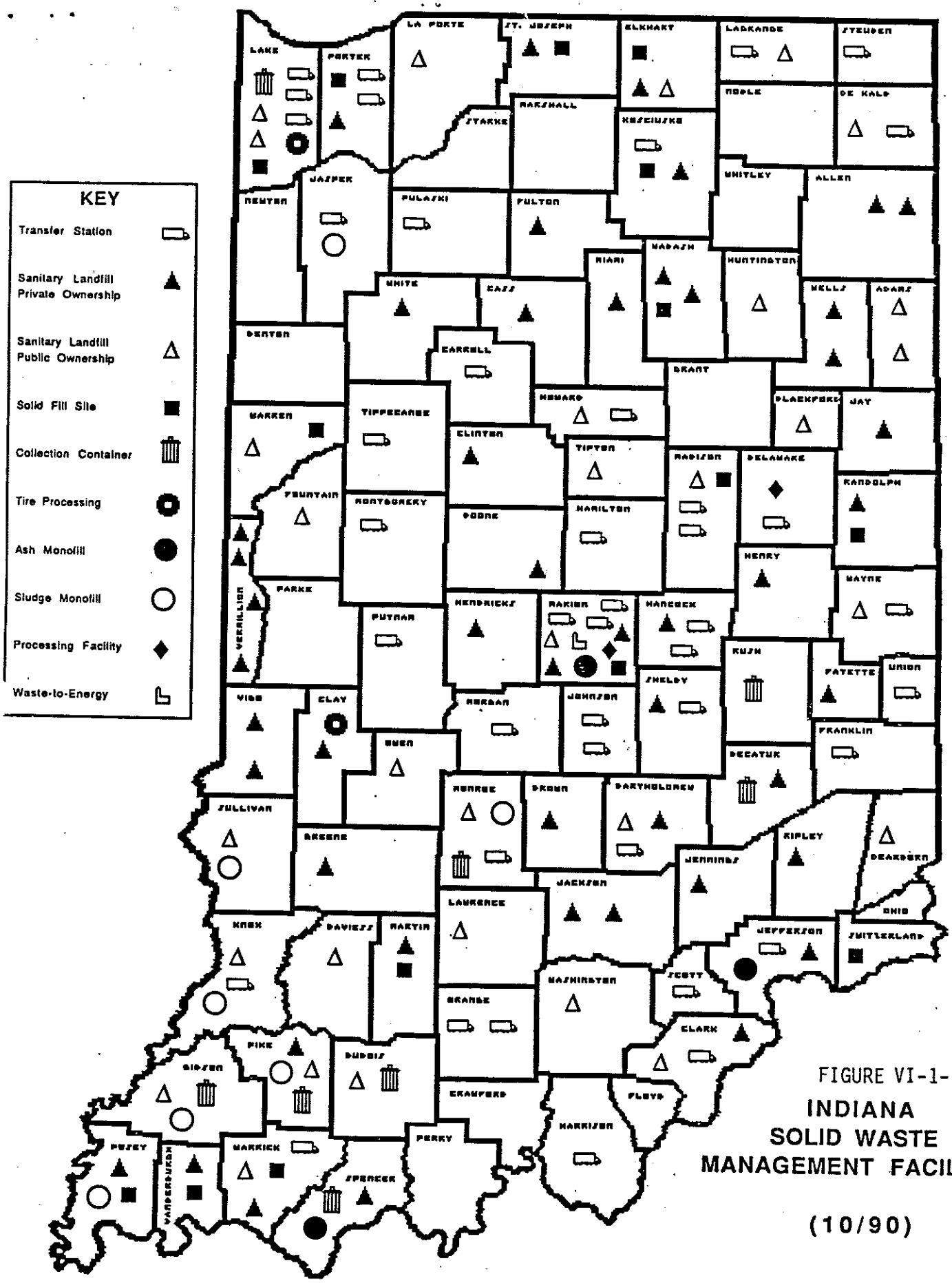


FIGURE VI-1-1

INDIANA SOLID WASTE MANAGEMENT FACILITIES

(10/90)

TABLE VI-1-2

Summary of Acreage and Height Expansion
Permit Applications

Facility Name	County	Type Expansion	Dates Applied
Bartholomew Co. Landfill	Bartholomew	Acres	4/25/89
Center Point Landfill Inc.	Clay	Ht	6/28/89
Montgomery Landfill, Inc.	Clinton	Acres	7/19/88
Daviess County Landfill	Daviess	Acres	3/11/88
Rumpke Landfill (Aurora)	Dearborne	Acre & Ht	4/20/87
Earthmovers Landfill	Elkhart	Acre & Ht	1/11/89
Elkhart County Landfill	Elkhart	Acres/Ht	6/23/87, 12/12/88
Mason-Hayes Landfill	Fayette	Acre & Ht	1/26/87
County Line Landfill	Fulton	Acres/Ht	2/23/90, 10/04/88
Hayes Landfill	Henry	Acre & Ht	8/24/87
Greentown Landfill	Howard	Acres	6/15/89
Jay County Landfill	Jay	Acre & Ht	6/24/87
Jennings County Landfill	Jennings	Acres	1/19/88
Ransbottom Landfill	Kosciusko	Acres	3/07/89
Newton County Landfill	Newton	Acres	4/07/87
A. B. Brown Station (Sigeco Filter)	Posey	Acres	3/09/89
Randolph Farms Landfill	Randolph	Acre & Ht	3/08/88
West Clinton Landfill	Vermillion	Ht	1/25/89
Spring Valley Landfill	Wabash	Ht	1/28/85
Wabash Valley Landfill	Wabash	Acres/A&H	5/15/85, 1/16/90
Richmond Sanitary Landfill	Wayne	Acres	7/01/87
Chambers Liberty Landfill	White	Acre & Ht	5/17/89

RECYCLING ACTIVITIES

Indiana has experienced a surge in the number of recycling activities in various counties in recent years. Based on the results of a statewide recycling survey conducted in 1988, IDEM reported that there were approximately 65 recycling facilities of various kinds located throughout the state. Most were small, unorganized drop-off and buy-back centers, and only 29 of Indiana's 92 counties had such facilities in 1987. Nineteen of these facilities were located in Marion county alone. In addition, there was one permitted and several small composting operations throughout the state.

The results of a follow-up IDEM survey in 1990 indicated that there were over 345 recycling facilities of various kinds throughout the state. This shows a dramatic increase in the number of recycling facilities in only three years. Most of these activities consist mainly of drop-off and buy-back centers and some processing facilities, although there are a few municipally run curbside collection programs. In 1990, all but 14 counties reported some form of recycling activity or involvement.

Figure VI-1-2 shows the locations of the various recycling facilities reported in response to the 1990 IDEM survey, by county. It is assumed that certain other facilities are in operation, other than those shown on Figure VI-1-2, which were overlooked or did not respond to the IDEM survey. In an independent phone survey, 21 Indiana communities reported some level of organized aluminum, newspaper, plastics, tin and white goods recycling.

The exact amount of materials currently recycled in Indiana is extremely difficult to project at this time. In 1988, IDEM estimated that approximately five percent of Indiana's waste stream was either being recycled or reused to some extent. It is expected that this figure is much higher now, given the increase in the number of facilities and programs present throughout the state. All existing recycling efforts and programs could be counted toward reaching the State's 35 percent and 50 percent recycling and waste reduction goals.

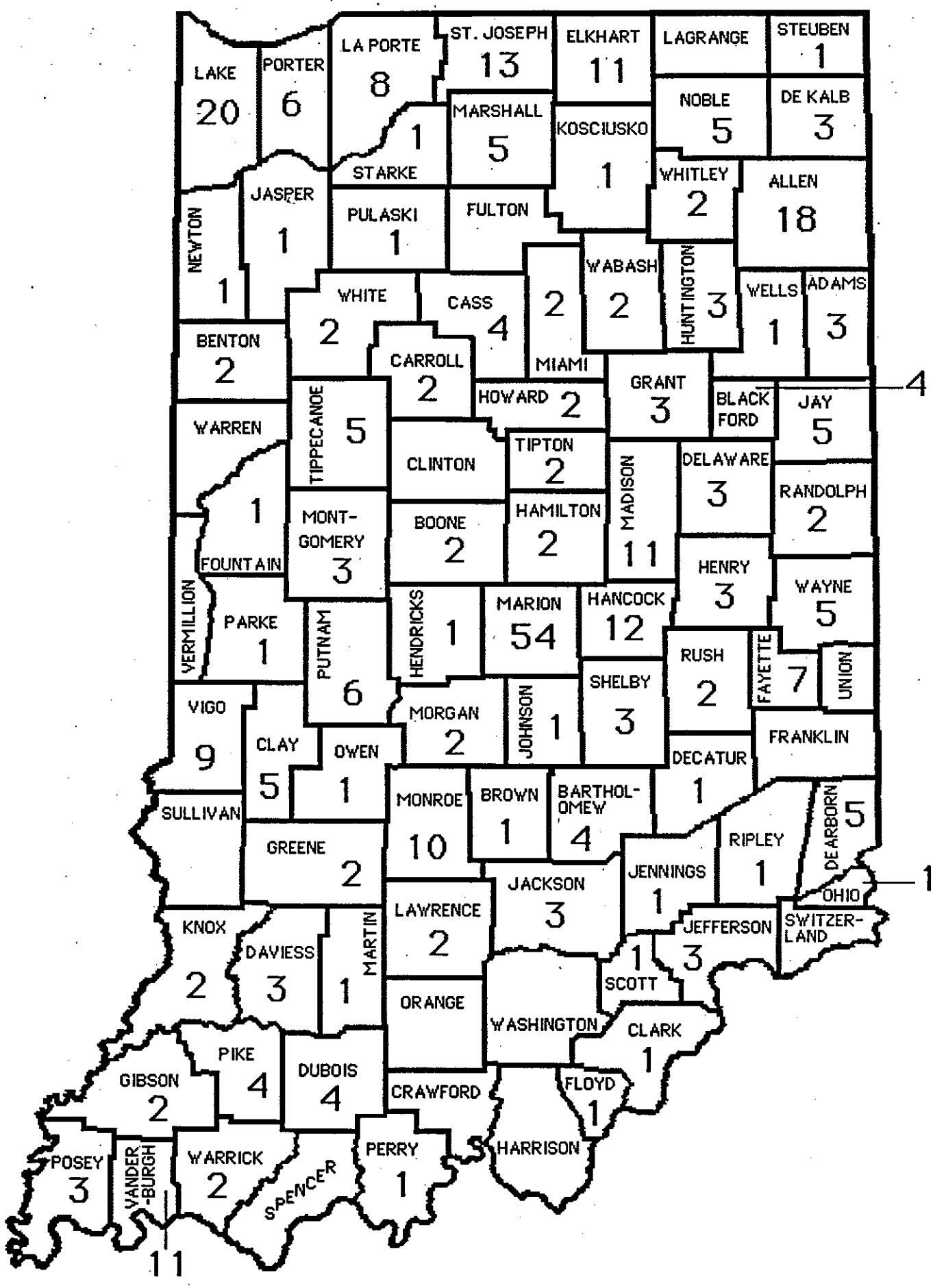

LAKE 20
PORTER 6
LA PORTE 8
ST. JOSEPH 13
ELKHART 11
LAGRANGE
STEUBEN 1
NOBLE 5
DE KALB 3
MARSHALL 5
KOSCIUSKO 1
STARKE 1
WHITLEY 2
ALLEN 18
JASPER 1
NEWTON 1
PULASKI 1
FULTON
WABASH 2
HUNTINGTON 3
WELLS 1
ADAMS 3
WHITE 2
CASS 4
2
BENTON 2
CARROLL 2
MIAMI
GRANT 3
BLACK FORD
JAY 5
4
WARREN
TIPPECANOE 5
HOWARD 2
TIPTON 2
CLINTON
MADISON 11
DELAWARE 3
RANDOLPH 2
1
FOUNTAIN
MONT-GOMERY 3
BOONE 2
HAMILTON 2
HENRY 3
WAYNE 5
VERMILLION
PARKE 1
PUTNAM 6
HENDRICKS 1
MARION 54
HANCOCK 12
RUSH 2
FAYETTE 7
UNION
VIGO 9
CLAY 5
OWEN 1
MORGAN 2
JOHNSON 1
SHELBY 3
FRANKLIN
DECATUR 1
SULLIVAN
GREENE 2
MONROE 10
BROWN 1
BARTHOL-OMEW 4
RIPLEY 1
DEARBORN 5
JENNINGS 1
1
OHIO
JACKSON 3
KNOX 2
DAVIESS 3
MARTIN 1
LAWRENCE 2
JEFFERSON 3
SWITZER-LAND
1
SCOTT
ORANGE
WASHINGTON
CLARK 1
PIKE 4
DUBOIS 4
GIBSON 2
CRAWFORD
FLOYD 1
POSEY 3
VANDER-BURGH
WARRICK 2
SPENCER
PERRY 1
HARRISON
11

FIGURE VI-1-2

COMPOSTING ACTIVITIES

In 1988, there was one permitted composting facility in the state, located in Montgomery county. Data supplied by the IDEM in 1990 indicated no such facilities were permitted in Indiana. There are reportedly several small-scale operations either in operation, or being planned in various communities. Only one large-scale operation exists at this time, the Rose Brothers facility located in Pike County.

TRANSFER STATIONS

Several Indiana communities do not haul all of their solid waste directly to final disposal facilities. Transfer stations are an integral part of Indiana's current solid waste management activities. At the present time, there are 42 permitted transfer stations in operation in 32 counties, some of which have no existing permitted landfills. Several of these facilities also incorporate some form of material recovery into their operations. Most transfer stations which include some type of material recovery are privately owned and operated. Figure VI-1-1 shows the location of all permitted transfer stations in Indiana.

WASTE-TO-ENERGY FACILITIES

Only two large-scale municipal solid waste incineration facilities are in operation at the present time. The largest, located in Indianapolis, generates steam from the incineration process for resale to the downtown steam heating system. The second facility, located in East Chicago, is currently an incineration-only plant with plans to install energy recovery equipment in the near future. A third facility, to be located in Bloomington, is reportedly going through the planning and permitting stages.

Numerous governmental and private concerns have been investigating waste-to-energy systems over the past several years as a means of future solid waste management, but none are known to be in the developmental stages at this time. Also, no permit applications for waste-to-energy facilities are before the IDEM at this time.

There are also over 200 other permitted incinerator facilities throughout the state. All are privately owned; all are small commercial facilities serving the direct waste incineration needs of institutions such as hospitals, food markets and animal shelters. None of these facilities is currently known to burn municipal solid waste generated by persons other than the owner or operator.

PLANNING REFERENCE ON ESTIMATING SOLID WASTE GENERATION AND COMPOSITION

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

The Table VI-2-1 presents both historical and projected population estimates by county in the State of Indiana for the years 1980 through the year 2020, based on forecasts developed for the Indiana State Board of Health by the Indiana Business Research Center, Indiana University School of Business. The 1980 values are based on population counts from the 1980 census.

As Table VI-2-1 illustrates, population growth rates vary significantly for Indiana counties. State-wide, population growth is projected to be very small over the next twenty to thirty year period. Statewide population growth rates are projected to average approximately 0.125% per year (2.5% total) between 1990 and the year 2010, and approximately 0.087% per year (2.6% total) between 1990 and the year 2020. Statewide population is projected to level off and in fact, decline around the year 2015. Certain counties have higher rates of population growth projected, but in many counties, population is projected to actually decrease during each five-year period of the projection period.

The population distribution throughout Indiana is relatively uneven. Only 14 of Indiana's 92 counties have a projected 1990 population greater than 100,000. The average 1990 projected county population, is approximately 60,600; most counties have less than 50,000 population. Figure VI-2-1 shows the distribution of current population estimates by county.

Indiana County Population Projections

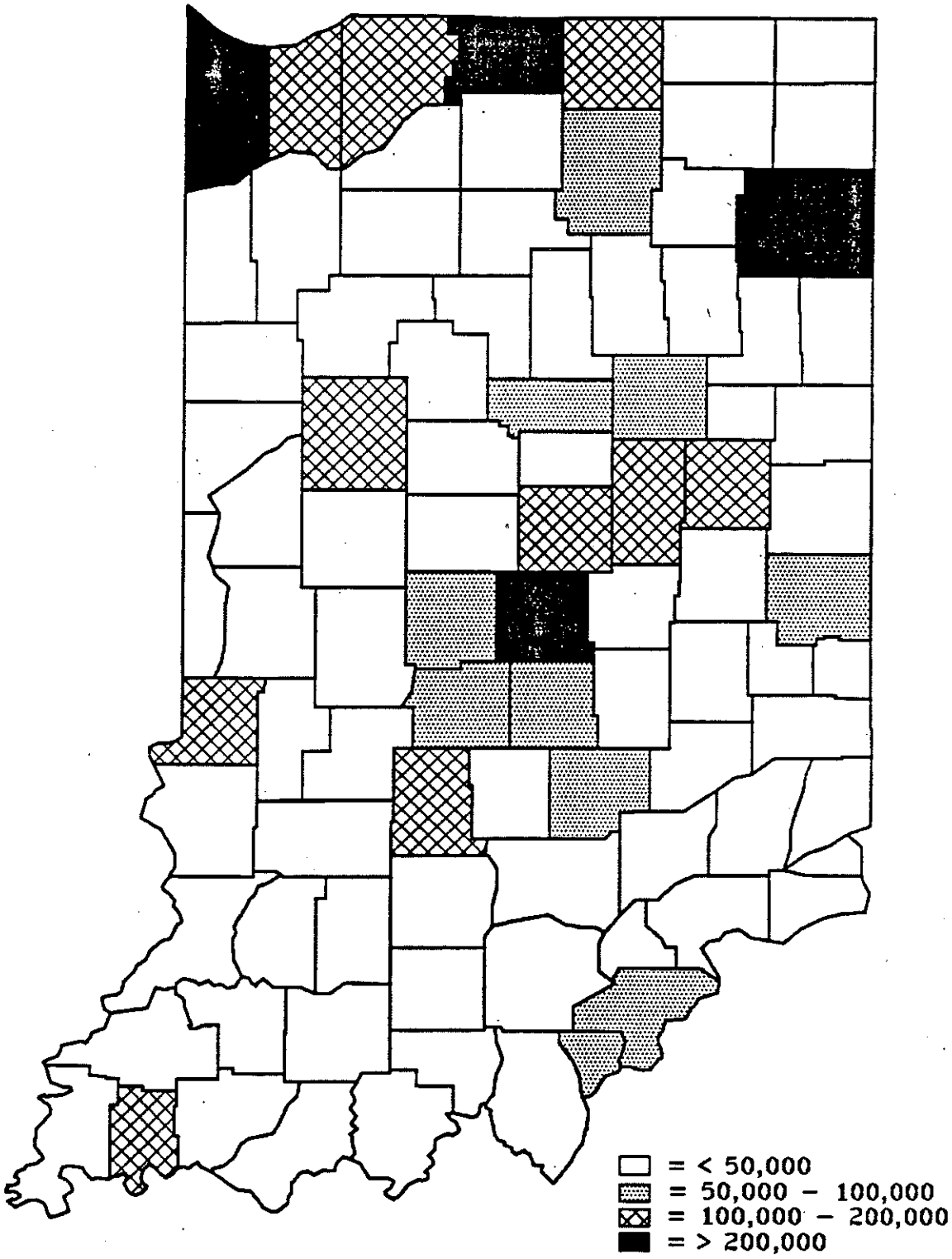
	1980	1990	1995	2000	2005	2010	2015	2020
Adams	29,650	31,180	32,170	33,150	34,070	34,940	35,660	36,510
Allen	294,330	296,780	300,250	302,920	304,850	306,240	306,580	305,760
Bartholomew	65,090	65,800	66,090	66,390	66,780	66,900	66,710	66,360
Benton	10,260	10,090	10,120	10,000	9,860	9,830	9,980	10,070
Blackford	15,560	15,110	15,020	14,850	14,590	14,310	14,110	14,060
Boone	36,470	39,760	41,350	42,700	43,970	45,050	45,950	45,850
Brown	12,410	13,100	13,190	13,280	13,280	13,260	13,210	13,140
Carroll	19,720	18,910	18,500	18,110	17,720	17,400	16,990	16,780
Cass	40,950	39,560	38,800	38,000	37,440	37,120	36,820	36,540
Clark	88,880	90,860	91,850	92,580	93,160	93,450	93,380	93,170
Clay	24,900	24,520	24,170	23,810	23,510	23,280	23,100	22,930
Clinton	31,540	31,050	30,850	30,700	30,600	30,450	30,320	30,150
Crawford	9,840	10,190	10,290	10,320	10,330	10,400	10,410	10,420
Daviess	27,840	29,760	30,490	31,120	31,690	32,360	33,040	33,730
Dearborn	34,320	38,180	39,700	40,800	41,690	42,320	42,940	42,900
Decatur	23,850	23,540	23,400	23,330	23,270	23,210	23,140	23,110
Dekalb	33,620	34,010	34,440	34,740	35,060	35,170	35,170	35,100
Delaware	128,610	120,970	120,620	120,790	122,700	124,070	125,240	126,500
Dubois	34,280	36,840	37,760	38,480	39,010	39,510	39,880	40,040
Elkhart	137,350	149,840	154,450	158,020	160,460	162,050	162,810	162,710
Fayette	28,320	27,790	27,660	27,580	27,470	27,340	27,150	26,970
Floyd	61,190	64,100	65,050	65,640	65,870	65,830	65,730	65,580
Fountain	19,040	18,780	18,700	18,480	18,210	17,930	17,650	17,480
Franklin	19,600	20,860	21,490	22,020	22,460	22,740	22,890	22,990
Fulton	19,350	18,600	18,270	17,960	17,740	17,580	17,420	17,320
Gibson	33,150	33,230	33,090	32,850	32,580	32,350	32,150	31,980
Grant	80,970	76,670	75,030	75,150	75,230	75,160	74,990	74,550
Greene	30,440	30,130	29,980	29,710	29,400	29,040	28,690	28,470
Hamilton	82,060	100,370	108,470	115,140	121,170	125,500	128,140	128,100
Hancock	43,960	45,750	46,610	47,430	48,050	48,280	48,340	48,230
Harrison	27,310	29,850	30,810	31,580	32,160	32,450	32,610	32,610
Hendricks	69,810	77,330	80,490	83,210	85,340	86,860	87,760	87,430
Henry	53,350	48,110	45,980	44,170	43,130	42,180	41,230	40,670
Howard	86,900	85,770	85,520	85,600	85,670	85,330	84,730	84,160
Huntington	35,630	36,020	36,240	36,380	36,560	36,650	36,720	36,730
Jackson	36,540	38,140	38,800	39,350	39,740	39,940	39,950	39,990
Jasper	26,140	27,080	27,420	27,660	27,800	27,970	28,080	28,170
Jay	23,270	21,270	20,560	20,070	19,520	19,180	18,810	18,630
Jefferson	30,440	29,570	29,440	29,580	29,760	29,920	30,000	30,030
Jennings	22,860	23,150	23,390	23,570	23,620	23,670	23,660	23,620
Johnson	77,290	87,990	93,150	97,370	101,080	104,240	106,330	106,430
Knox	41,830	41,980	42,000	42,220	42,510	42,830	43,260	43,640
Kosciusko	59,560	64,130	65,590	66,800	67,780	68,540	68,910	69,030
Lagrange	25,550	29,410	31,310	33,000	34,460	35,790	37,030	38,240
Lake	522,980	490,330	481,920	473,860	466,720	461,160	457,480	453,880
LaPorte	108,640	104,400	101,970	99,390	97,610	96,980	96,450	96,310
Lawrence	42,500	42,510	42,500	42,380	42,220	41,960	41,610	41,390
Madison	139,350	132,160	130,680	129,260	128,180	126,970	125,550	124,440
Marion	765,250	797,860	809,500	816,580	821,040	824,460	826,670	827,490
Marshall	39,170	42,060	43,110	43,880	44,530	45,060	45,370	45,440
Martin	11,020	10,960	10,990	10,930	10,880	10,690	10,490	10,410
Miami	39,820	38,160	38,220	38,750	39,090	39,320	39,420	39,260

Indiana County Population Projections

	1980	1990	1995	2000	2005	2010	2015	2020
Monroe	98,810	103,110	105,620	107,630	108,890	109,500	109,650	109,500
Montgomery	35,530	36,230	36,690	37,050	37,450	37,640	37,770	37,840
Morgan	52,020	59,390	62,160	63,960	65,300	66,200	66,770	66,730
Newton	14,900	14,150	13,880	13,650	13,440	13,120	12,810	12,720
Noble	35,440	38,140	39,470	40,520	41,280	41,790	42,130	42,250
Ohio	5,140	5,770	6,080	6,310	6,340	6,350	6,390	6,380
Orange	18,680	19,130	19,210	19,260	19,270	19,190	19,090	18,960
Owen	15,850	17,330	17,870	18,200	18,320	18,330	18,360	18,370
Parke	16,390	15,990	15,860	15,660	15,530	15,340	15,240	15,120
Perry	19,380	18,870	18,610	18,380	18,160	18,060	17,940	17,880
Pike	13,480	13,170	12,950	12,670	12,300	12,070	11,880	11,770
Porter	119,870	127,850	131,210	133,710	135,840	137,480	138,420	138,740
Posey	26,450	27,060	27,310	27,530	27,740	27,960	28,030	27,990
Pulaski	13,290	14,040	14,410	14,720	14,980	15,220	15,440	15,690
Putnam	29,170	30,510	30,870	31,150	31,320	31,430	31,380	31,230
Randolph	30,020	28,100	27,820	27,460	27,040	26,590	26,080	25,840
Ripley	24,450	25,560	26,180	26,730	27,110	27,350	27,530	27,670
Rush	19,600	18,850	18,720	18,530	18,350	18,100	17,880	17,810
St. Joseph	241,610	241,140	240,930	242,530	243,760	246,450	248,980	250,880
Scott	20,440	21,130	21,390	21,690	21,840	21,930	22,020	21,980
Shelby	39,870	40,640	41,260	42,000	42,470	42,740	42,900	42,840
Spencer	19,370	20,790	21,300	21,640	21,840	21,950	22,050	22,020
Starke	22,020	21,480	21,320	21,240	21,190	21,200	21,190	21,160
Steuben	24,710	26,570	27,130	27,450	27,650	27,800	27,830	27,790
Sullivan	21,140	20,190	19,770	19,460	19,080	18,740	18,510	18,300
Switzerland	7,190	7,360	7,440	7,500	7,540	7,550	7,530	7,500
Tippecanoe	121,750	128,710	131,280	133,540	135,450	136,740	137,380	137,420
Tipton	16,840	16,040	15,730	15,460	15,130	14,850	14,610	14,430
Union	6,860	7,020	7,050	7,050	7,030	6,950	6,880	6,850
Vanderburgh	167,530	168,990	169,170	168,820	168,450	168,440	168,420	168,560
Vermillion	18,260	17,680	17,490	17,320	17,200	17,180	17,120	17,020
Vigo	112,420	108,750	106,880	106,730	106,540	106,720	107,380	108,150
Wabash	36,650	35,720	36,410	37,010	37,630	38,220	38,720	39,180
Warren	8,990	8,200	7,870	7,590	7,300	7,090	6,950	6,810
Warrick	41,500	49,460	52,920	55,830	58,150	59,670	60,490	60,500
Washington	21,940	23,240	23,750	24,200	24,520	24,700	24,800	24,830
Wayne	76,090	71,130	69,790	68,390	67,400	66,420	65,420	64,760
Wells	25,400	24,230	24,130	24,300	24,480	24,630	24,650	24,570
White	23,870	23,220	22,880	22,620	22,410	22,220	22,110	21,930
Whitley	26,210	27,590	28,180	28,650	28,990	29,210	29,280	29,250
Total:	5,491,890	5,577,100	5,626,440	5,665,780	5,696,330	5,718,340	5,728,720	5,724,720

Source: Indiana Business Research Center, Indiana University 1988.

Figure VI-2-1
Indiana County Population 1990



Employment

Employment is often a direct indicator of waste generation quantities, particularly with regard to commercial and industrial wastes. Employment rates are typically classified into manufacturing and non-manufacturing categories for the purposes of estimating waste generation, and further into types of businesses, which provides a measure of the industrial/commercial mix in an area. Employment data is commonly used by planners and is readily available on a county-wide basis, broken into types of business.

Table VI-2-2 summarizes 1988 employment by categories for the entire State of Indiana for manufacturing and non-manufacturing business, expressed as a percentage of non-agricultural employment. Agricultural employment was reported to be 3.2% of total state employment in 1988. Table VI-2-2 shows a fairly strong manufacturing base in Indiana, comprising about 23 percent of the state's total non-farm employment. Services and wholesale and retail trades are also predominant, comprising over 45 percent of the state's total employment.

Table VI-2-2

State of Indiana
Non-Agricultural Employment by Major Categories
1988 Values

Category	State-wide Employment	Percent
Manufacturing	648,640	22.8
Mining	11,389	0.4
Construction	152,307	5.4
Transportation and Public Utilities	149,869	5.3
Wholesale and Retail Trades	638,811	22.5
Finance, Insurance and Real Estate	181,228	6.4
Services	657,136	23.1
Public Administration	404,844	14.2
Totals	2,195,584	77.2
Total 1988 Non-Agricultural Employment	2,844,224	100.0

Source: United States Bureau of Economic Analysis, through the Indiana Business Research Center, Indiana University.

Individuals also generate sizeable quantities of solid waste when at work. Therefore, higher employment growth rates will often indicate increased waste generation rates over what might be projected on the basis of population growth alone. Figure VI-2-2 shows total manufacturing employment for 1988 by county, expressed as a percentage of total non-agricultural employment. For the period of 1980 to 1988, total non-agricultural employment in Indiana increased at an average annual rate of about 1.7 percent, which is substantially higher than the annual population growth rate experienced during the same time period.

Per Capita Income

Per capita income has been found in some parts of the country to influence residential waste generation rates, and sometimes waste composition. It is thought that waste generation rates will increase as per capita income increases. Such correlation is specific to each area, however, and no conclusive national trends have yet been formulated. As a result, most studies, both at the local and statewide levels, do not attempt to include the effects of varying per capita income per se. However, if existing national data is to be used to predict waste quantities for an area with per capita income significantly different from the national average, some adjustment should be made to the national data to reflect local conditions.

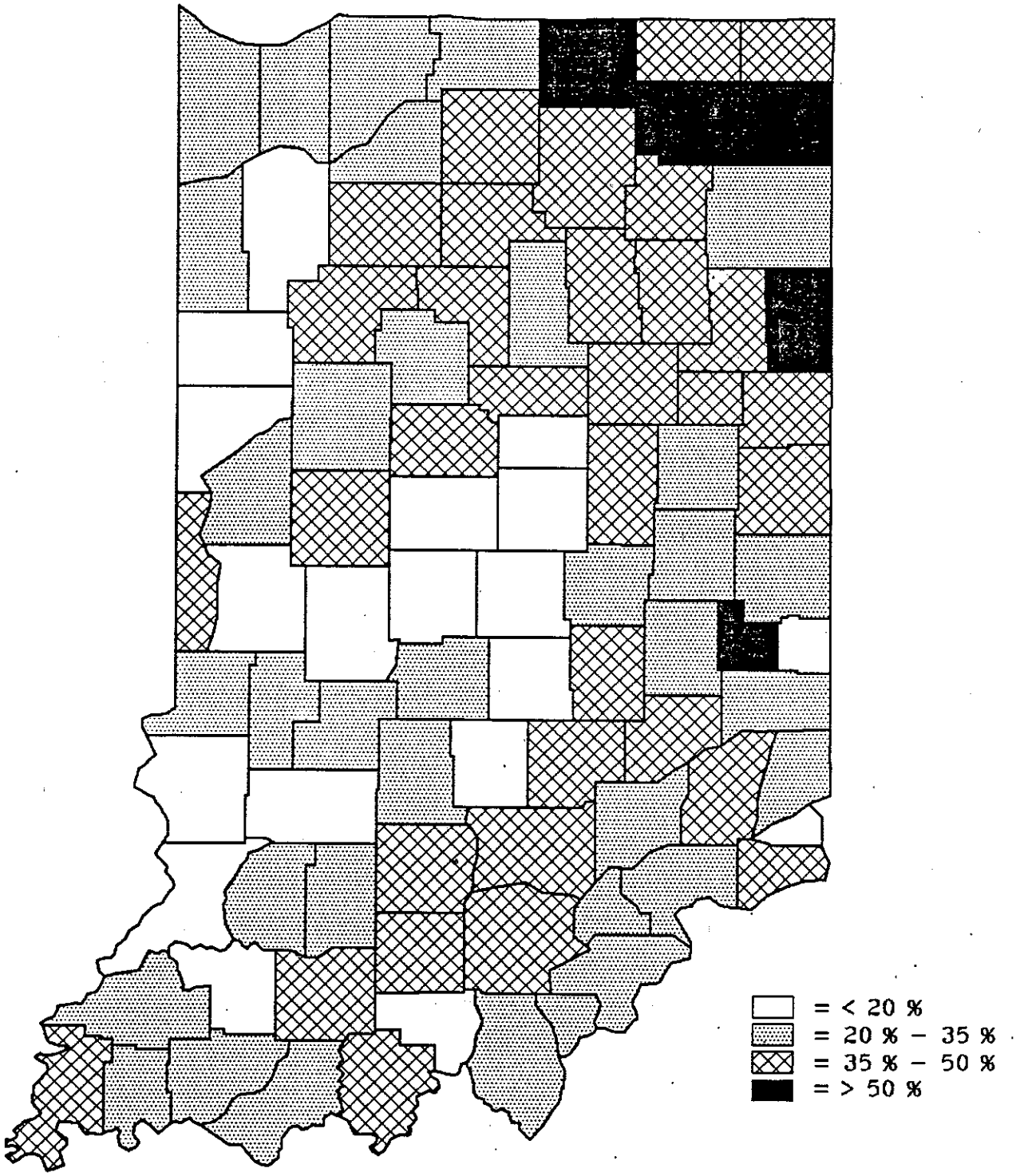
Information on the average per capita income of Indiana counties indicates that all but four counties (Allen, Boone, Hamilton and Marion) had per capita incomes less than the national average in 1987. The values range from a low of 58 percent of the national average for Switzerland County to a high of 131 percent for Hamilton County. Overall, the average per capita income in Indiana was approximately $13,945, or roughly 90% of the national average for that year.

Waste Stream Mix

The relative percentage of residential, commercial, and industrial waste generation sources will influence the methods used to estimate waste quantities. In general, population and employment data are usually used to estimate total waste quantities. However, heavily industrialized areas will find significantly greater industrial waste content than non-industrial areas. This affect will be highly specific to each area and will need to be specifically considered by each district.

Figure VI-2-2

Manufacturing Employment as a Percent of Total Non-Agricultural Employment - 1988



Total manufacturing employment compared to total employment gives an indication of the impact of industrial versus commercial activity in a given area. Figure VI-2-2 shows the relative level of industrial activity for Indiana counties, expressed as a percentage of manufacturing employment to total employment for 1988.

Manufacturing employment represents about 23 percent of the state's total employment. However, as shown on Figure VI-2-2, there are five Indiana counties with manufacturing employment over 50% of the total employment, or twice the state average. Further, in about half of Indiana's counties, manufacturing employment comprises over one-third of the total employment base.

Types of Businesses and Industries

Large or dominant businesses and industries can also have a sizeable affect on a district's solid waste stream. This influence will be different for each district, depending on the types of businesses and industries present, and should also be specifically considered by each district. Usually, such waste generators are isolated and surveyed individually to determine their specific waste quantities and characteristics. Examples of such large waste generators include heavy industries, military installations, and large medical and educational institutions.

Seasonal Conditions

Seasonal conditions such as tourism or extreme weather variations will also influence solid waste quantities. However, waste composition will usually not be affected. In most planning studies, seasonal variations in waste quantities are addressed by using average annual waste generation factors. Care should be exercised in specific instances where monthly or daily maximum and minimum waste generation values could impact certain types of waste management activities.

Land Use

Waste generation rates and characteristics will typically differ somewhat between districts consisting of predominantly rural or urban areas. Rural areas typically have much lower waste generation rates than do urban areas, due primarily to the lack of industry and commercial businesses in such areas. For this reason, predominantly rural areas may need to be addressed separately in estimating waste quantities for an entire district.

ESTIMATING WASTE QUANTITIES

Estimates of annual solid waste quantities generated within a district or community are usually developed on the basis of historical records of landfill and other waste management facility receipts and from information provided by waste haulers and others involved in the solid waste business. Breakdowns into categories and sources of waste are usually performed by adjusting historical values to reflect changes in population, employment, and other factors outline previously. Projections of certain waste stream components have also been performed by using unit waste generation factors specific to a particular waste stream components, such as various types of commercial establishments. However, this method has not been a common practice due to the difficulty in obtaining the information required to calculate separate waste generation factors.

Estimating Methodologies

The following methodologies have typically been used by State and district entities to project annual solid waste quantities:

Method 1 - Estimate historical waste quantities generated within a district from historical records. Project future waste quantities by simple trend analysis after adjustment to account for known changes in industrial makeup, population growth, economic activity, etc.

Method 2 - Estimate historical waste quantities generated within a district from historical records. Project future waste quantities by applying per capita waste generation factors for the entire waste stream, derived from past waste quantity, population, and employment indicators and historical waste generation rates for specific businesses.

Method 3 - Project residential waste quantities by using national average or historical district per capita estimates, adjusted for population and income variances. Estimate commercial and industrial waste generation by using national average data, where applicable, or through surveys of major generators. Project future waste quantities by applying unit waste generation factors to specific local characteristics.

Regardless of the method selected, the following guidelines should be considered by each district:

- Projections should reflect long-term rather than short-term trends, both historical and future.

- Projections should reflect both district-wide and community-specific trends and influences where appropriate.

- Sensitivity analyses should be conducted to determine the impact of varying certain key assumptions and to determine the degree of conservatism that should be used. For capital-intensive projects, it is often preferable to be more conservative in estimating waste quantities than in other systems, such as landfills.

Historical Waste Quantities

Historical waste generation quantities are typically derived from reviews and analyses of the records of all existing solid waste management facilities. Incinerated tonnages are usually available from facility records. Quantifying recycled materials is often more difficult, but can be estimated from surveys of local and regional recycling business and reviewing records of government-sponsored programs. If such sources are not readily available or are incomplete, national averages can be used after adjustment for local participation levels.

Accurate landfill records are also often difficult to obtain, since few facilities in Indiana have weighing scales; many private landfill operators are reluctant to divulge such information; and historical disposal reports are often expressed in terms of volume, rather than tonnage. It is difficult to determine accurate tonnages from volume conversions due to different conversion methods, and the inherent uncertainty due to partially loaded delivery trucks, various compaction densities, etc.

Many Indiana solid waste districts will have to rely on historical waste estimates based on volumetric measurements. House Bill 1240 does require landfills accepting over 200 tons of waste daily to install scales to accurately measure incoming waste quantities, and other rules may require scales be installed at all waste disposal facilities. However, there are several methods that can be used to calculate waste tonnage when relying on volumetric measurements, the most common being landfill vehicle counts and landfill volume surveys. Landfill records often contain information about the type, size, and frequency of incoming disposal vehicles. If such records are unavailable, a vehicle count can be performed over a specified time period, from which an annual estimate can be made by extrapolating the results. Seasonal adjustments can be determined from interviews with landfill operators and waste haulers. This method is somewhat subjective, since decisions need to be made to account for adjustments due to seasonal variations, out-of-district deliveries, and estimated vehicle loadings.

Another method often used to estimate waste volumes is a landfill volume survey, which determines landfill space occupied by historical waste receipts. Visual inspections or site surveys are

the basis for this approach. Occupied landfill space is often converted to tonnage by using a factor of 1,000 to 1,200 pounds per cubic foot of compacted waste and cover.

Portable scale surveys can also be used to weigh incoming vehicles over a specified time period. Usually, vehicle type and capacity are also recorded so that solid waste density can be calculated, which can then be used to more accurately convert vehicle counts and volume estimates to weight. This approach can be time-consuming if complete and accurate results are anticipated.

Projecting Solid Waste Quantities

Future waste quantities in a district can be estimated using the results of historical waste generation quantities thus determined for the entire waste stream and using a graphical or numerical trend analysis. In the graphic method, a curve is fitted and drawn forward from historical data points. A numeric analysis would employ simple regression techniques. In both cases, a large number of historical values are needed for the greatest accuracy. This method does not recognize various factors affecting individual waste stream components, but is the quickest and easiest method. It assumes that future trends follow historical trends very closely.

Per capita waste generation rates for the entire waste stream can also be used, but these are highly variable, depending on community size and business and industrial makeup. For districts encompassing diverse cross-sections of businesses, industries, and rural and urban areas, this method should be used for each distinct entity. Numerous studies done elsewhere have revealed average total waste stream generation rates of between 2.5 pounds per capita per day ("pcd") in highly rural areas to upwards of 10.0 pcd for highly industrialized areas.

Statewide averages have generally been considered to fall in the 4.0 to 8.0 pcd range, depending on numerous factors. The State of Missouri, for example, estimated a statewide waste generation rate for all waste stream components of approximately 5.4 pcd in a 1987 study. The State of Maine, on the other hand, projected a statewide waste generation rate for all waste stream components of approximately 4.2 pcd in a 1988 study, with individual community values ranging from 2.7 pcd for communities with less than 1,000 population to 5.1 pcd for communities with population greater than 10,000. The State of Washington estimated a statewide waste generation rate of approximately 6.3 pcd in 1987 for the entire waste stream. The State of California's estimate was over 8.0 pcd in 1989. The State of Alabama assumed an average annual rate of 6.0 pcd for all wastes in its statewide plan.

In its 1988 report, the IDEM projected that between 3.6 to 6.4 million tons of solid waste would be generated in Indiana in 1990. This equates to an average waste generation rate of between 3.5 to 6.3 pcd statewide, based on recent population estimates. Based on the results of the survey conducted on existing landfills in Indiana, it can be concluded that between 6.6 and 7.4 pcd are disposed in Indiana in 1990. This range includes a sizeable portion of waste generated in other states, and is based on speculative and incomplete data. It excludes wastes disposed in restricted waste sites, such as ash, sludge, and construction and demolition debris.

Assuming an average annual waste generation rate of 6.0 pcd for all waste streams, it is estimated that Indiana will generate slightly over 6 million tons of solid waste in 1990. Due to relatively low population growth estimates, the annual figure is projected to increase to just under 6.5 million tons by the year 2010.

Care should be taken when using published data derived from other sources in order to ascertain exactly what is and is not included in such data, and what types of communities or states the data came from. Data used from the State of Maine, for example, which is highly rural in most parts of state, and has a highly seasonal tourism business along coastal regions, would be inappropriate to apply to most regions in Indiana.

Because these two method basically assumes that all communities are more or less identical, and does not reflect to any great degree any area-specific trends and patterns, they are not recommended for use by Indiana's solid waste districts.

The third suggested method is the most preferred and is considered the most accurate. It consists of utilizing per capita generation rates from residential sources, based on historical data or data published for communities elsewhere with similar makeup and characteristics, and separate methods for estimating the commercial and industrial waste stream components. This method takes the most time and effort on the district's part, but is expected to result in significantly more accurate projections.

The most accurate method for determining commercial and industrial waste generation quantities is to conduct field surveys of the actual generators. Usually, such entities are first classified into categories, such as manufacturers, offices, restaurants, retail establishments and so forth. Waste loads from representative generators in each category are then isolated and weighed over a specified time interval. Annual waste generation can then be extrapolated from the survey period. This method is costly and time-consuming where several types and numbers of such waste generators are involved.

A second method for determining commercial and industrial waste generation quantities is to conduct mail surveys. After all such entities are classified into predominant categories, a detailed mail survey is sent to each waste generator in each category. Usually, follow-up phone surveys are done to confirm and request additional data. The results of these surveys will give the district a good indication of waste generation rates and waste composition from each source.

A final option for estimating commercial and industrial waste stream quantities is to use published data obtained from other studies for various establishments. The Tables VI-2-3 and VI-2-4 summarize the results of national data obtained in other regions of the country for various commercial and some industrial entities.

Estimating annual waste generation quantities will be a critical component of each district's solid waste management plan to determine future needs, goals and realistic objectives. Methods commonly used range from very simple and quick to very costly and time-consuming. Often, the estimates are subjective and involve a great deal of judgement. The effort spent is typically dependant on the district's makeup, population base, purpose, and planning criteria.

Table VI-2-3

Selected Commercial/Industrial Waste Generation Rates

Generation Category	Tons per Employee per Year (1)	Pounds per Occupied Square Foot per week (2)
Offices	0.28	0.05
Retail	2.29	0.22
Wholesale	2.29	0.06
Public and Institutional	0.59	0.04
Other Services (3)	1.68	--
Transportation, Communication and Utilities	1.68	0.10
Restaurants	3.14	--
Industrial and Manufacturing	0.27-8.85	0.06

Sources:

(1) "Best Management Practices Analysis for Soli Waste, 1987 Recycling and Waste Stream Survey," Volume I, Office of Waste Reduction and Recycling, Washington State Department of Ecology, December, 1988.

(2) Cerrato, David, "Estimating Recyclables in the Commercial Waste Stream," Resource Recovery, August 2, 1989.

(3) Includes hotels, motels, trailer parks, repair services, theaters, amusement parks and recreation services, museums, art galleries and household businesses.

Table VI-2-4

Selected Commercial Waste Generation Rates

Generation Category	Generation Rate (per day)
Department Store	75 pounds corrugated + 100 pounds other waste per $1,000 sales
Hospital	16 pounds per occupied bed
Motel	2 pounds per room
Restaurant	1.5 pounds per meal served
Shopping Mall	2.5 pounds per 100 square feet
Supermarket	100 pounds corrugated + 65 pounds other waste per $1,000 sales
Warehouse	1 pound per 100 square feet

Source: National Solid Wastes Management Association, Technical Bulletin #85-6, October, 1985.

Generation Category	Annual Generation Rate
Restaurants	2.28 tons per employee
Offices (Business, Legal and Financial	.24 tons per employee
Retail Trade Outlets (including malls)	.48 tons per employee
Educational Institutions	.09 tons per student
Light Industrial/Office Parks	.38 tons per employee

Source: "Waste Reduction and Recycling: Practical Planning, Curriculum Guide and Reference Manual," State of Washington, Department of Ecology.

WASTE STREAM COMPOSITION

Another important element of a district's solid waste management plan will be to determine the characteristics of its waste stream. The effectiveness of various recycling and waste reduction programs will vary considerably, depending on the characteristics in a certain areas. A district must determine, with some degree of certainty, what types of materials are being disposed, how much of each type is being disposed, and who the significant generators of each type of waste are. This section outlines sample procedures a district can utilize to determine the quality and composition of the waste generated within its jurisdiction, and presents the results of certain regional, statewide, and national waste composition studies.

Three basic methods are generally utilized to determine the characteristics of a given waste stream. These are:

- Conducting a waste characterization study - This approach requires sampling and sorting of solid waste, which is an expensive and time-consuming effort as relatively large sample sizes are required for accuracy. In addition, the sampling must be done throughout the year to compensate for seasonal variations, particularly in the residential waste stream. Residential, commercial and industrial wastes must all be sampled for a complete study. This approach would be further complicated by a district having numerous counties or several diverse waste areas, since multiple sampling could be required.

- Utilizing existing data - This approach uses existing data to develop "best estimates" for the planning area by relying on secondary data, or data that has been developed elsewhere to depict typical district-wide averages for the waste stream. Care must be taken to rely on data from other communities or districts with similar population, makeup and climatological conditions. National data are available from the U.S. Environmental Protection Agency for such purposes, as are several regional and statewide studies. These data could be used to characterize the local waste stream, if they are properly adjusted to reflect local conditions.

- A combination of local data from sampling and existing data from statewide or national studies - existing data for the residential waste stream may be adequate for district planning purposes. The commercial and industrial waste streams are extremely variable between locations, however, depending upon the commercial and

industrial mix of the planning area and the activities taking place. Thus, actual sampling, or surveying of the commercial and industrial waste stream is advisable.

Secondary data should not be used for project planning, for determining the feasibility of a capital-intensive projects, or for preliminary design purposes. For planning, designing, or evaluating feasibility of a capital project, such as a waste-to-energy facility, a localized waste stream characterization study should be incorporated into the planning process at an early date.

Waste Stream Sampling

If it is determined that a waste stream characterization study should be conducted, there are several important considerations that should be addressed in designing the survey methodology:

- Appropriate sampling categories should be established depending on the objective of the study. Categories will vary depending on whether data are to be used for developing waste-to-energy, composting or recycling programs or landfills.

- The survey should cover all waste sources. Quantities and composition for each major source must be determined because composition can vary dramatically. Random sampling of a few compactor loads being delivered to a landfill or transfer site will not produce acceptable district-wide data.

- An adequate number of samples of each major source must be taken to ensure reliable data.

- Samples should be taken throughout a one-year period to reflect seasonal changes in composition. This is particularly true of the residential waste stream.

- Income has a significant impact on residential waste and thus residential samples should be stratified to reflect the income composition of the planning area.

- The sample size or amount of waste sorted from each load varies, depending on the number of categories. The greater the number of categories, the larger the sample should be.

- Loads should be mixed, or care should be taken to ensure that the samples are reflective of the entire load being sampled. Dumping a few hundred pounds out of a pickup truck will not provide a reliable overall sample.

- If drop boxes are utilized in rural areas, these should be sampled as well as curbside pickup loads, since the composition is likely to vary.

By identifying significant waste generators, the potential for managing portions of the waste stream on an individual generator or generator-type basis is possible. Significant generators often present unique problems and/or opportunities in a waste management system.

To determine significant generators, it is necessary to analyze individual records by account or route and obtain information from individual haulers or generators. Major commercial entities or any other unusual or large public institutions, hospitals, and schools should be identified to individually determine the most appropriate method to characterize the types and volumes of waste disposed.

Utilizing Existing Data

Available residential waste stream characterization data - existing data- in most cases are often used for waste reduction and recycling planning. If such an approach is chosen, different methodologies must be used for the residential and commercial waste streams. Existing data for industrial waste sources are currently not readily available.

Residential Waste Stream

The Table VI-2-5 summarizes the results of certain studies of residential waste composition done for various California communities.

Table VI-2-5
Percent of Materials in Residential Waste Stream
State of California Report.

Material	San Francisco	San Mateo	Stanislaus County	Berkeley	San Diego
Newspaper	14.0 %	12.1 %	9.6 %	10.1 %	10.5 %
Paper and Paperboard	38.8	35.8	25.1	30.8	35.1
Glass	9.8	8.6	6.3	5.9	5.4
Ferrous Metals	3.6	4.9	4.4	2.1	4.6
Aluminum and Other	1.0	1.0	0.9	0.6	1.0
Plastics	9.2	8.6	6.3	5.9	6.4
Rubber	incl.	0.4	incl.	incl.	incl.
Textiles	incl.	1.4	2.3	1.1	incl.
Wood	incl.	2.4	1.3	0.4	incl.
Food Wastes	11.6	6.8	19.3	15.2	incl.
Yard Wastes	4.4	10.7	14.9	18.0	12.3
Other Organic Materials	incl.	3.6	4.6	4.3	19.3
Other Materials	incl.	4.3	1.0	3.4	1.4
Year of Survey	1987	1985	1987	1988	1982

Source: "Waste Reduction and Recycling: Practical Planning, Curriculum Guide and Reference Manual," State of Washington, Department of Ecology,

incl. - Indicates particular component included in some other category

Combined Residential and Commercial Waste Streams

Data for commercial and industrial loads must be localized. Percentage breakdowns for a state or the entire nation will not apply in local planning areas due to the particular mix and volume of commercial and industrial waste generation.

Secondary data are often used for residential and commercial waste stream composition estimates in district planning studies. Industrial estimates are extremely site-specific and will depend entirely on the local environment.

The Table VI-2-6 through Table VI-2-10 present the result of the Washington Department of Ecology sponsored sampling efforts of the residential and various commercial waste streams in Washington State, and the results of various solid waste composition studies conducted in the State of California.

Table VI-2-6
Percent of Materials in Waste Stream
State of Washington Sampling

Material	Residential	Restaurants	Business & Legal Offices	Retail Outlets	Educational Institutions
Newspaper	7.29 %	0.00 %	8.15 %	0.00 %	0.00 %
Paper and Paperboard	26.56	19.22	87.42	83.61	75.57
Glass	6.69	9.17	0.67	0.83	0.99
Ferrous Metals	1.46	1.44	0.41	0.61	9.38
Aluminum	1.24	0.34	0.92	0.43	1.28
Other Metals	3.36	0.07	0.10	0.00	0.14
Plastics	9.07	10.92	2.33	6.64	2.41
Rubber and Leather	0.40	0.00	0.00	0.00	0.00
Textiles	3.27	0.00	0.00	0.70	0.00
Wood	0.78	2.55	0.00	3.76	5.68
Food Wastes	7.98	56.30	0.00	3.41	4.55
Yard Wastes	30.78	0.00	0.00	0.00	0.00
Other Materials	1.12	0.00	0.00	0.00	0.00

Source: "Waste Reduction and Recycling: Practical Planning, Curriculum Guide and Reference Manual," State of Washington, Department of Ecology,

Table VI-2-7
Percent of Materials in Combined Waste Stream
State of California Report

Material	San Francisco	Sonoma County	Santa Clara County	Watsonville
Newspaper	10.4 %	0.0 %	8.4 %	3.0 %
Paper and Paperboard	36.3	35.0	45.8	34.8
Glass	7.8	incl.	5.7	4.5
Ferrous Metals	5.3	incl.	3.5	4.4
Aluminum and Other	0.9	8.0	0.9	0.6
Plastics	8.6	7.0	9.3	9.1
Rubber	incl.	incl.	incl.	incl.
Textiles	incl.	4.0	incl.	2.0
Wood	5.7	incl.	incl.	10.1
Food Wastes	10.2	12.0	5.1	10.9
Yard Wastes	3.5	14.0	11.3	11.0
Other Organic Materials	5.3	1.0	7.6	6.5
Other Materials	6.0	4.0	2.4	3.1
Year of Survey	1987	1982	1984	1988

Sources: Numerous Solid Waste Characterization Studies throughout California, as summarized and reported in: "Achieving Optimal Waste Recycling and Source Reduction: Methods to Reach Your County's Recycling Goal, Resource Manual," California Waste Management Board. May 1989.

incl. - Indicates particular component included in some other category

Table VI-2-8

Percent of Materials in Combined Waste Stream

State of California Report

Material	Berkeley	Los Angeles	Fresno/ Clovis	Santa Cruz
Newspaper	8.9 %	8.8 %	8.5 %	3.8 %
Paper and Paperboard	30.8	12.1	40.0	18.0
Glass	5.9	7.6	5.9	3.9
Ferrous Metals	2.7	5.5	5.8	1.1
Aluminum and Other	1.0	1.6	1.9	3.1
Plastics	5.3	5.5	5.9	6.0
Rubber	incl.	1.5	incl.	1.0
Textiles	1.9	4.9	2.9	1.5
Wood	8.7	12.6	incl.	12.1
Food Wastes	8.0	6.0	incl.	11.2
Yard Wastes	13.1	23.0	12.9	19.9
Other Organic Materials	2.3	8.7	15.2	1.4
Other Materials	8.9	1.9	1.2	16.6
Year of Survey	1988	1981	1980	1989

Sources: Numerous Solid Waste Characterization Studies throughout California, as summarized and reported in: "Achieving Optimal Waste Recycling and Source Reduction: Methods to Reach Your County's Recycling Goal, Resource Manual," California Waste Management Board. May 1989.

incl. - Indicates particular component included in some other category

Table VI-2-9

Percent of Materials in Combined Waste Stream

Various Sources

Material	Brevard Co. Florida	Delaware Co. Pennsylvania	State of Washington	Onondaga Co. New York
	(1)	(1)	(1)	(2)
Newspaper	14.1 %	5.1 %	3.8 %	incl.%
Paper and Paperboard	27.3	37.7	24.5	36.0
Glass	5.6	5.1	5.2	8.8
Ferrous Metals	5.4	4.3	7.6	3.5
Aluminum and Other	1.1	1.8	0.9	1.3
Plastics	8.9	8.1	7.4	9.5
Rubber	incl.	incl.	incl.	incl.
Textiles	incl.	incl.	incl.	3.7
Wood	7.6	5.6	7.1	7.8
Food Wastes	7.7	6.9	8.8	12.8
Yard Wastes	13.2	12.8	18.0	4.3
Other Organic Materials	5.8	5.3	1.5	0.0
Other Materials	3.3	7.2	15.2	12.3
Year of Survey	1988	1988	1987	1988

Sources:

(1) Numerous Solid Waste Characterization Studies, as summarized and reported in: "Alabama Solid Waste Management Plan, Phase I," Alabama Department of Environmental Management. November, 1989.

(2) "State of Maine, Solid Waste Disposal Capacity Needs Analysis," Department of Environmental Protection. December, 1988

incl. - Indicates particular component included in some other category

Table VI-2-10
Percent of Materials Discarded into Municipal Waste Stream
State of Missouri

Material	Percent of Waste Stream By Weight
Paper and Paperboard	41.0 %
Glass	4.0
Non-Ferrous Metals	1.0
Ferrous Metals	5.0
Plastics	2.7
Rubber and Leather	8.0
Yard Wastes	10.0
All Other Materials	31.0

Source: "Statewide Resource Recovery Feasibility and Planning Study, Volume I, Summary Report," State of Missouri Environmental Improvement and Energy Resources Authority, December, 1987

The percentages of various waste stream components can vary significantly between communities, districts and states, as is evident on the preceding tables. This particularly reflects the impact that site-specific items such as employment, income levels, and commercial and industrial mixes can have on the composition of the solid waste stream.

Care should be taken by solid waste districts in using published data from specific communities and other states. Local planners should ascertain the exact methods used in these sampling surveys, the status of state and regional recycling programs, source reduction strategies, bottle bills, and so forth, and the overall objective that prompted each study to determine the effects that these items might have had on the outcome. Districts that rely on published data from communities and other districts should endeavor to match their own characteristics as closely as possible to those of the sampled communities.

The Table VI-2-11 summarizes the results of a generic study, conducted for the United States Environmental Protection Agency, which estimated nationwide data for the entire residential, commercial and institutional waste stream. Again, the following values are only rough estimates for the entire nation; localized secondary data from similar communities or regions should be relied upon more heavily by Indiana's solid waste districts. Industrial waste composition is excluded from these values.

Table VI-2-11

Percent of Materials Discarded into Municipal Waste Stream

EPA Municipal Waste Stream Survey

Material	1980	1984	1990	1995	2000
Paper and Paperboard	33.6 %	37.1 %	38.3 %	39.7 %	41.0 %
Glass	11.3	9.7	8.8	8.1	7.6
Ferrous Metals	8.9	8.3	7.8	7.4	7.1
Aluminum	1.1	1.1	1.4	1.5	1.7
Other Metals	0.3	0.2	0.2	0.2	0.2
Plastics	6.0	7.2	8.3	9.1	9.8
Rubber and Leather	3.3	2.5	2.5	2.5	2.4
Textiles	2.3	2.1	2.2	2.2	2.2
Wood	3.9	3.8	3.7	3.8	3.8
Food Wastes	9.2	8.1	7.7	7.3	6.8
Yard Wastes	18.2	17.9	17.0	16.1	15.3
Other Materials	1.9	1.9	2.0	2.0	2.1

Source: "Characterization of Municipal Waste in the United States, 1960 to 2000," Franklin Associates, Ltd.

PLANNING REFERENCE ON FACILITY SITING CONSIDERATIONS

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

FACILITY SITING CONSIDERATIONS

INTRODUCTION

Selecting a site for a waste management facility, such as a transfer station, recycling center, compost facility, landfill or waste-to-energy facility, is typically a difficult step in the development of a solid waste management program. Public involvement often involves intense interest in specific issues related directly to people's homes and neighborhoods.

House Bill 1240 (HB 1240) assigns solid waste districts the responsibility for assuring proper management of their solid waste and also the authority to design and implement facilities considered necessary for proper solid waste management within their jurisdictions. In deciding where to locate new or expanded facilities, the district is directed to consider its solid waste management plan and other specific factors required under HB 1240 and existing State and Federal rules and regulations.

This section primarily focuses on the technical and emotional issues involved in siting the most controversial waste management facilities - municipal solid waste ("MSW") landfills and waste-to-energy ("WTE") projects, which are designated as "final disposal" facilities by HB 1240, and describes the methods normally used to conduct siting studies. Many of the concepts and critical issues, however, are also applicable to other facilities such as transfer stations, composting facilities, and recycling centers. In addition, the same considerations for a MSW landfill would apply to an incineration ash landfill; however, the unresolved regulatory situation regarding the classification of incinerator ash makes development of criteria for ash disposal facilities uncertain at this time.

OVERVIEW OF THE SITING PROCESS

Siting will eventually become an important consideration in the process of developing and implementing any comprehensive solid waste management plan. Siting studies may involve finding a location to construct new facilities, or integrating a new activity at an existing site. In any case, the siting process is theoretically designed to find the best possible location to accommodate the proposed facility while minimizing operation and development costs, as well as impacts on the surrounding area. It usually involves matching the requirements of a proposed facility with the attributes of a site through a formal study process. Siting studies can take a significant amount of time and effort, especially when

public participation is included. A complete study may take as little as five to more than fifteen months. Although formal siting studies performed early in a project's development may involve significant time and financial commitments, the benefits derived in achieving public acceptance and minimizing technical problems normally far outweigh the costs.

A siting study is usually initiated when the need for a particular facility is confirmed. It is impossible to define specific siting guidelines for all solid waste management facilities because the site requirements of the many types of facilities differ greatly, site characteristics across Indiana differ significantly, and the relative importance of the various key siting considerations changes over time and differs among communities and regions of the State.

Since it is impractical to gather a great deal of specific information about many sites, siting studies are generally organized to develop increasingly detailed information about each site as the number of sites under consideration is reduced. The site selection process typically involves three basic steps:

- Development of the study guidelines.
- Identification of potential sites in the study area.
- Comparison of the sites to determine their relative ranking.

The study guidelines, which include the initial assumptions and limitations, are strongly influenced by the study's overall objectives. The most basic guidelines establish geographical or political boundaries. It is also important to quantify the waste sources that the facility would be expected to serve. Based on anticipated waste volume and engineering judgment of typical disposal technologies, basic parameters describing facility construction and operation are developed and become additional guidelines for the siting study.

It is important for the project sponsor - generally the district - to develop guidelines for the siting study before it is begun. Such guidelines should identify the scope of the study, the methods to be used, the facility to be sited, and who will conduct each part of the siting study. After a draft procedure is developed, reviewed, and approved by appropriate officials, the procedure should be made available to the public and any interested groups for their comments. The siting procedure should then be modified to incorporate appropriate public comments and documented by issuance of a report or by publication in the newspaper.

The technical activities of a siting study have four major subject areas - environmental, engineering, economic, and public interest concerns. It is common practice in most siting studies to engage a consultant or team of consultants to conduct some or all of the technical activities. Selection of outside consultants is typically necessary not only to obtain the required technical expertise but also to achieve the required level of objectivity for the siting study.

There is considerable interaction among the four key technical areas and, in fact, a great deal of overlap in many cases. For instance, the engineering and economic issues of the site development are clearly linked. Furthermore, the major economic and environmental issues are likely to be the key areas of public interest.

Potential sites are typically identified in the second step of the siting process by first applying a few broad site criteria to the entire study area to identify many general sites which could possibly accommodate the proposed facility, according to the guidelines set. The criteria are specifically chosen to be exclusionary in that each divides the study area into acceptable or unacceptable portions. By application of such criteria (the "needs"), large parts of the study area are effectively eliminated from further consideration. For example, if a certain facility needs to be constructed in an area zoned industrial, then all other zoning areas would be excluded from consideration. Conditional exclusion would prohibit all such locations unless certain conditions can be met. It is important to consider public comments on the needs of a project site.

Evaluation criteria for potential sites not excluded are established on the basis of "wants". For instance, if one soil type is more desirable than another, then potential sites with the preferred soil would be judged better than sites with a different type. Evaluations can sometimes be quantified on the basis of cost or some other numerical scale, but often the comparison is qualitative. Developing a summary comparison of sites under such conditions can be difficult because quantitative and qualitative evaluations must be considered and compared to conclude the total site evaluation. Again, it is important to obtain and consider public comments on the "wants" that are to be used as criteria.

These activities are often accomplished by mapping of various criteria to identify general localities where it would be appropriate to locate a site. This mapping effort is followed by a visit to each locality. On site, the preceding map work is confirmed and engineering judgment is applied to identify general areas where sites could be located. Smaller, more specific sites are then located within the larger areas, and each specific site is examined to determine if it has any fatal flaws.

At some point, technical evaluations must be documented and released to the public and public feedback collected. The siting guidelines should define how, when and where the release of study

results to the public is to be accomplished as part of the overall public acceptance program. The degree and method of public information and public participation can be critical elements of any siting study. Public opposition will always be likely for any selected site. However, the magnitude of opposition is normally less if the public feels they have had an opportunity to make their concerns known and that these concerns were considered during the siting study.

Once specific potential sites are identified, the final step of the siting study is initiated to locate the best prospective sites. Each potential site is subjected to a detailed evaluation through on-site observations and a review of available information. Specific data are gathered to support evaluation of each site, applying a wide range of comparative criteria. For such an evaluation, a scale of scores is typically developed for each criterion. Each criterion is, in turn, rated with respect to its relative importance among all criteria. Then, specialists in various fields of science and engineering address each criterion. The result is a comparative ranking of the sites with respect to each of the evaluation criteria and an overall comparison of sites based on the accumulated scores.

Every siting study is conducted under a set of conditions determined by the study objectives and other outside influences. Those conditions create various practical assumptions and limitations for the study with respect to scope, schedule, and methods. Limitations may affect the study results, and a comprehensive siting study should address the sensitivity of the study results to key assumptions and limitations.

Sensitivity analyses can take many forms, but usually include testing the study results by varying the importance of main criteria or by eliminating some criteria from the analysis to see if the same sites remain top-rated. If key sites, especially the preferred site, hold their ranking through sensitivity tests, then confidence in the determination is strengthened. Radical changes in rank order indicate that the potential sites are similar in quality and that the rank is sensitive to the assumptions used in the analysis.

DISTRICT SITING CONSIDERATIONS AND CRITERIA

HB 1240 does not specifically outline issues that districts should considered in determining whether to recommend a proposed solid waste management facility site. Generally, however, the district should include consideration of the following items:

- Its solid waste management needs, and its solid waste management plan once approved.

- Existing or planned development.

- Major transportation arteries and existing State primary and secondary roads.

- The relationship of the facility site to industries, both existing and proposed, that generate or will generate large volumes of solid waste.

- Costs and availability of public services to support the facility and protect public health, safety, and the environment.

- Potential impacts on health and safety, and locations that minimize these impacts.

- Social and economic impacts, including changes in property values and social or community perceptions.

These considerations are for the most part socioeconomic, although there are certainly technical aspects to availability, infrastructure, and health and safety. Criteria at the district level are usually applied before a proposal is considered against State or Federal requirements. Any site selected will have some socioeconomic effect on some portion of the population, and the site with the least impact should be considered the most viable.

The application of criteria involves judgment as to the acceptability and effectiveness of mitigation measures and the relative importance of each non-exclusionary criterion. There are various weighting or ranking systems commonly used for comparing sites. The number of criteria involved is a function of the siting agency, its priorities, the number of candidate sites, and the data collection effort desired. Likewise, the siting process will follow a protocol determined at the district level, which would typically would involve the district board, a citizen's advisory committee, professional consultants, State and Federal agencies, and the public at large.

Criteria will differ for various facilities because of differences in impacts. Where groundwater and surface water protection are usually the focus for landfills, emissions criteria typically predominate for WTE plants and traffic, noise, and nuisance impacts are usually considered most important for transfer stations and recycling centers. All of the facilities will benefit from good transportation access and availability of water, sewer, and electric utilities. Although there is some difference in the sensitivity of communities to each type of facility, all can be controversial and therefore should have adequate buffering and compatible adjacent land uses to have a reasonable chance of being sited.

Factors that are important to each district will also differ. Therefore, each district needs to determine the overall importance of each criterion item, and needs to develop a quantifiable "point" system that determines the extent to which a proposed site meets a specific criterion, and the overall weighting of that criterion as compared to all others. Once all the criteria have been evaluated, the total weighted points for a site can be determined. Ranking of preferred sites, or rejection of sites that do not meet an established minimum point value, can then be done.

The suggested considerations outline above are described in the following:

Solid Waste Management Plan

The percentage and total amount of solid waste going to the facility that is generated by the overall district, or by the sub-areas of the district for a facility designed to serve portions of that district, should be determined. Acceptable ranges of percentages could be established to ensure that facility use and site location are reasonably equitable. It should also address the presence of, or proximity to, existing solid or hazardous waste facilities and sites. Reasonable limits on the number of facilities in a local area or minimum distances between waste facilities could be established. This criterion attempts to address the equitable distribution of the burden of providing regional facilities.

Existing or Planned Development

This criterion should address required buffer zones requirements for each type of facility and the characteristics and intensity of the buffer (open, wooded, berm) between the proposed site and the closest developments. The minimum buffer included in IDEM regulations (100 feet) would make it possible to permit a landfill very close to developments, but, in less developed areas of the State, buffers on the order of 2,000 feet or more may be appropriate. Sites with small buffer zones would be much less acceptable. Buffer requirements for WTE facilities and transfer stations would normally be less than those required of landfills and could be waived if surrounding land use was compatible.

This criterion should also evaluate the population or number of households within various distance rings surrounding the site. The total affected population can be adjusted using weighting factors to give more significance to the population closer to the site. For landfills and WTE facilities, predominant wind directions and the likelihood and significance of potential impacts should also be considered. The maximum distance considered to have a potential impact is at the discretion of the district and will differ by facility and locale. Specific comparisons can be developed that give priority to sites that have the lowest effect on the surrounding population.

On-site and adjacent land uses, both existing and proposed, need to be reviewed. Land use within the district's boundaries needs to be prioritized and the compatibility of the various land use categories should be used to rate the site according to these land use criteria. On-site land uses would typically be lost even though they might be able to continue as the facility is developed. Where a mix of land uses exists, ratings are either prorated or based on the most sensitive adjacent land use. Sites that impact high priority or sensitive land uses should be given a low priority or rejected.

The number of residential households along local access routes to the site should also be determined. Depending on setbacks and existing truck traffic on various highways, some households may not be counted as subject to an additional impact. Sites that impact large numbers of households should be given a low priority.

The number of sensitive land uses (schools, churches, hospitals, etc.) along access routes to the site should also be examined. Judgment is used to determine whether to count uses along other than local roads and those with large setbacks from the roadway. Economically sensitive land uses, such as commercial shopping centers, should also be considered. Sites that significantly impact sensitive land uses along access routes should be given a low priority.

Transportation Routes

Principal access roads to a site are important. Sites with direct access from principal arterial highways are preferred. The route should be considered in terms of number of lanes, condition of pavement, planned/budgeted improvements, and the amount of existing truck traffic. Designated truck routes are preferred. Where the existing roadway is inadequate, the cost and feasibility of upgrading should be included in the evaluation, or the site should be given a low priority.

Level of service and accident ratings of principal access routes should also be considered. Even though the site may be accessible by way of major highways, traffic and safety conditions may make the site less desirable.

Waste Generators

Proximity to large waste generators should be determined. Where an industry or several large industries generate a substantial percentage of the waste stream projected to go to the facility, on-site facilities or facilities close to the sources of generation should be considered as most desirable. Certain types of industries will require industrial landfills that will not be reviewed by the district or be part of its management plan.

Cost and Availability of Public Services

Costs to provide required water, sewer, wastewater treatment and electric service for the facility should be evaluated. The costs will vary dramatically between sites in undeveloped areas with little infrastructure and areas fully served by utilities. In remote locations, private, on-site systems will be provided for most utilities. Hauling leachate and other wastewater to publicly-owned treatment works should be considered, and its cost added to that for other utilities.

Availability of police, fire, medical and emergency response services should be taken into consideration. Only developed areas are likely to have these services readily at hand. In the absence of public facilities and personnel, the facility will have to make arrangements for dedicated facilities, trained personnel, and emergency medical transportation in conjunction with the host community.

Cost per ton-miles of waste transportation should also be determined. Part of the cost of solid waste or recyclables collection services is the cost of hauling from the collection point to transfer, disposal, or recycling facilities. Sites are best located close to the centroid of the waste to minimize transportation costs. For a transfer station, location relative to waste origins and destinations is important, since if the transfer station is not strategically located and the transfer truck hauling distances great enough, the facility may not save money over direct haul.

Health and Safety Impacts

The primary safeguards against health and safety impacts specific to MSW landfills are through IDEM and EPA regulations. Similarly, health and safety impacts for other types of facilities are regulated at the State and Federal levels, although not necessarily with regulations specific to each type. From a local viewpoint, health and safety impacts are mitigated by selecting sites that are less susceptible to various impacts because of natural attributes and adequate setback distances.

Health and safety impacts include groundwater and surface water contamination and air quality degradation. Contamination of public water supply wells most often applies only to land disposal facilities, but could apply to other facilities as well. Only major supply wells (greater than 100,000 gallons per day) are usually considered, but this is subject to the discretion of the district.

Distances from the facility to the closest surface water body or wetland should also be considered. This criterion provides some indication of the susceptibility of surface water to impacts from facility runoff or spills. Obviously slope, terrain, storm water control measures and the character of buffer zones will also affect the outcome, and should be considered.

Air quality degradation applies primarily to WTE facilities. Non-attainment areas are those which do not currently meet standards for at least some criteria pollutant, whereas sites in Prevention of Significant Deterioration ("PSD") areas meet or exceed all standards. Sites in designated non-attainment areas for a pollutant emitted by a facility above "de minimis" levels require emission offsets. Sites in PSD areas require use of best available control technology. Either of these circumstances require additional studies and mitigation expenses. This is primarily an important criterion for incinerators, but also applies to landfills. Recent regulations address emission of volatile organic compounds from landfills.

Social and Economic Impacts

The principal social and economic impacts not already otherwise addressed have to do with the effect of the facility on the local economy. Previously suggested criteria have dealt with population distribution around the proposed facility site and adjacent and en-route land use compatibilities. Social and economic criteria implicitly consider effects on local property values and economies.

Consideration of the cost of a facility and its annual payroll relative to the local property tax base measures the value of the facility as a percentage of the local economy, and gives some indication of its ability to change or disrupt the local environment. If the facility is publicly developed, there would be a potential loss of property taxes and an increase in other taxes necessary to fund the enterprise. If the proponent of the facility offers a host community benefit, this should also be considered against the local economy and the additional services that could be provided.

STATE AND FEDERAL SITING STANDARDS

Independent of the specific requirements that districts might have with regard to facility siting, IDEM and EPA regulations address specific siting standards for land disposal facilities. These State and Federal standards would not be expected to be addressed explicitly in the district's review process. However, some level of assurance that the site can meet these regulatory criteria needs to be provided to the district as part of their overall review process. Sites are prohibited by the State in the following locations, except for mitigation provisions where noted:

- Wetlands in violation of Section 404 of the Clean Water Act, as amended, with absolute prohibition in areas that would cause wetland degradation.

- The critical habitat of an endangered species.

- Floodplains with floodways of drainage areas greater than one square mile, without the approval of the Department of Natural Resources and floodways without provisions to prevent washout of waste.

- Within areas of karst topography, without provisions to collect and contain all leachate generated and, in such areas or over mines, without demonstration that the integrity of the landfill will not be damaged by subsidence.

- Within 600 feet of a potable water well in use as a water supply for dwellings, unless written consent is obtained from the owner of the well.

- Within 600 feet of any dwelling, unless written consent is obtained from the owner and occupant of the dwelling.

- Within 100 feet of any lake, reservoir or continuously flowing stream.

- Within a floodplain, unless the waste is protected from floodwater inundation by a suitably sized dike.

- Within 100 feet of the real property boundaries of the facility.

- Within 1,200 feet of any public water supply well, unless written consent is obtained from the owner of the well.

The Federal government, through RCRA Subtitle D (as currently proposed), places additional locational restrictions on landfills regarding:

- Proximity to airport runways

- Floodplains

- Wetlands

- Fault areas (absolutely prohibited within 2,000 feet of a fault that has had displacement within the past 9,000 years)

- Seismic impact zones

- Unstable areas, including landslide prone, karst geology susceptible to sinkholes, and undermined regions

With the exception of fault areas, each of the other restrictions is a conditional exclusion, i.e., it is subject to mitigation and exceptions.

Subtitle D also addresses three different approaches to risk assessment in allowing states to set design goals for landfills. Hydrogeologic characteristics of the site area, climatic factors, proximity of groundwater uses, and groundwater quality must be considered. In particular, groundwater time of travel is an important consideration which integrates many characteristics of the groundwater regime. For the most part, neither IDEM nor Federal regulations address the local socioeconomic perspective on solid waste facility site suitability, since land use planning has traditionally been a role of local government.

KEY TECHNICAL REQUIREMENTS TO CONSIDER

Various environmental, engineering, and economic requirements can be critical factors in a siting study either because they are essential or limiting in a technical sense, or because they are key public interest items. Sometimes the same factors are both technically important and paramount in the public eye. At other times, public interest can elevate a minor technical concern to much greater importance.

In the following sections, the most likely key issues for WTE and landfill siting studies are discussed. Criteria outlined under the District Siting Considerations and Criteria section of this document are likely to apply predominantly to other types of facilities, such as recycling centers, transfer stations and compost facilities, but many of the following issues could also arise for such projects. Only those items likely to be important in typical studies have been highlighted. However, any issue can become important if sufficient public interest prevails.

WASTE-TO-ENERGY FACILITY SITE REQUIREMENTS

Although larger sites are more desirable, a typical 400 ton-per-day WTE facility could be constructed on a site as small as five acres. A WTE facility has general characteristics which are similar to many other industrial facilities. The construction of such a facility results in specific resource demands, as well as key impacts on aesthetics, water resources, air resources, and traffic.

Subjects that should be considered in siting a WTE facility include the following:

- Topography
- Water Availability
- Water Quality
- Air Quality
- Vehicle Access
- Aesthetics
- Land Use Compatibility
- Energy Customer Proximity
- Landfill Proximity
- Proximity to Waste Generation Centroid
- Soils and Geology
- Off-Site Improvements
- Natural Resource Effects
- Human Resource Effects
- Construction Considerations
- Traffic Impacts

Specific siting considerations for WTE facilities are not directly addressed under the Indiana Solid Waste Management Board Rules. Since HB 1240 defines WTE facilities as final disposal facilities, some consideration should be given to applying all State and Federal siting standards applicable to landfills to WTE facilities, whenever they can be appropriately applied, which are described previously.

Of the sixteen subjects listed above, several are frequently key issues in siting a WTE facility. The following discussions address those subjects expected to be important issues in a siting study for a WTE facility in Indiana.

Water Availability

Water availability can be expected to be a major issue if the proposed facility will require cooling system make-up water in addition to water required for general uses. Possible sources for such quantities of water are existing municipal systems, surface sources such as rivers and lakes appropriately classified for light industrial uses, and groundwater sources. Cooling system water demand can be substantial, and for large facilities may have impacts on the water supply system of smaller communities. Furthermore, local groundwater sources often are reserved to provide municipal drinking water. A 400

ton-per-day WTE facility could require from nearly zero to more than 500 gallons per minute of make-up water depending on the type of energy customer (steam or electric sales) and cooling system.

Air Quality

WTE facilities produce air emissions as a result of the combustion process. On modern plants these emissions are significantly reduced with pollution control equipment. Impacts may be further mitigated by siting in relatively remote areas. A WTE facility can be sited in urbanized locations without undue concern, if certain precautions are taken. Preliminary analyses will be required during siting to identify sensitive receptors relative to air pollutants, other sources of air pollution that could interact with the proposed facility, and terrain situations that could increase potential impacts. In Indiana, the construction permit application must be accompanied by evidence of approval of the air pollution control devices on the WTE facility by the Air Pollution Control Board, and by a description of the proposed site and method of disposal of residue ash.

Aesthetics

Although architectural treatments can produce an attractive facility, it is advantageous to favor sites that limit the visibility of the operations to passers-by and the general public. This can be accomplished by several means. The site can be constructed in an area away from public view or, if close by, it can be screened from view by selection of a well-wooded site or by advantageous use of topographic relief. In any case, sites near seismic or recreational areas should be avoided. Siting the facility near existing industrial facilities, which is often required when steam is sold by the WTE facility, can also reduce aesthetic concerns.

In order to assess the aesthetic character of sites and of adjacent land, both visual concerns (involving the degree of openness or exposure) and scenic concerns (relating to the landscape character) should be evaluated. Both visual and scenic aspects are normally defined to be key elements in an assessment, since they describe not only whether a particular site can be viewed by the casual observer, but also whether the area in question is unique, sensitive, or otherwise undesirable for development.

Land Use Compatibility

A major public concern in siting WTE facilities is land use compatibility. Sites located near schools, residential areas, parks, and other areas that involve non-compatible activities may face strong public opposition. Where applicable, zoning is used as a measure of land use compatibility. Sites not meeting the zoning requirements are usually eliminated during the preliminary screening of the study

area. This evaluation is important in Indiana because the facility permit application must include a letter of approval from the local government that the zoning requirements have been satisfied. In addition, changing existing zoning can often involve significant public opposition. Sites presently in use as waste processing facilities or sites previously used for industrial purposes have clear advantages with regard to land use over those requiring new construction on currently unused property.

Personal observations and professional judgment must be used to determine the relative compatibility of existing land use to the proposed facility. Evaluations in this category are subjective to a great extent and, therefore, represent comparative judgment. For this reason, it is important to describe the criteria used.

Traffic Impacts

A WTE facility will have the potential to create two major long-term impacts on existing traffic. It will increase the amount of truck traffic traveling the existing roads (the volume consideration), and it will redirect the flow of any trucks presently serving landfills within the district (the traffic pattern consideration). These factors have different impacts on roads depending on road capacity, present volume, and the relationship of the present volume to design capacity.

Special characteristics of the traffic pattern may also have impacts. For instance, if the location of the facility requires a significant percentage of trucks and personnel to make left hand turns, the appropriate channelization and signal systems required will decrease the capacity of the highway to handle present and future traffic loads. The increased traffic volumes and effects on traffic patterns can cause delays in travel time, fuel waste, increased driver stress levels, road deterioration, and higher accident frequencies. Traffic impact on residential areas is many times a key issue of public concern and must be given proper consideration.

LANDFILL SITE REQUIREMENTS

Three types of landfills are currently permitted in Indiana, sanitary landfills for municipal solid waste, demolition landfills for inert matter such as stumps, bricks, and wood, and restricted waste landfills. This section will focus on sanitary landfills since they are of prime concern, and in Indiana would also be the designated disposal site for ash from incinerators, provided such ash is not proved to be a hazardous material after testing.

Sanitary landfills are characterized by a unique combination of potential water and air pollution and aesthetics problems. The potential impacts resulting from burying a combination of solid wastes are largely unpredictable because the chemical reactions and biological decomposition that take place underground are difficult to monitor and project with any certainty. The results from such subterranean activity include potential water pollution resulting from surface runoff or seepage of water through the landfill to groundwater resources. In addition, some of the chemical and decomposition by-products are gases that can escape the landfill or permeate the ground to escape elsewhere causing explosion hazards or localized air pollution. Aesthetic problems include odors, adverse visual impacts and increase traffic flows.

In siting a landfill, site characteristics become very important. A common misconception is that any remote, open area of land can be used for a landfill. Landfill design alternatives are limited, sophisticated alternatives are expensive, and mitigation is very difficult and costly. The disposal capacity of a landfill is very dependent on site-specific characteristics; however, a site that could support 400 tons per day of raw municipal solid waste for a twenty-year life would require as much as 60 acres at a depth of 60 feet. The following factors are frequently considered during the investigation of a potential new landfill site:

- Topography
- Soils and Geology
- Groundwater Hydrology
- Surface Water Hydrology
- Traffic Impacts
- Aesthetics
- Land-Use Compatibility
- Natural Resources Effects
- Cultural Resources Effects
- Construction Considerations

Indiana Solid Waste Management Board Rules require consideration of several specific items such as site conditions, design requirements and operational procedures in the site selection process for a landfill. Indiana also requires descriptions of procedures for dust control, proposed methods of control for rodents, flies, mosquitos and other vectors, distances to the nearest dwelling, and proposed methods of control of leachate and gas control. Indiana further mandates that any construction in a 100-year flood way have the approval of the Natural Resources Commission as well as approval by the commissioner of the IDEM, and that endangered and threatened species and critical habitat not be destroyed. Furthermore, any site must also have certain buffer zones between the landfill

and adjacent property, bodies of water, seasonal high groundwater table, private dwellings, and water wells.

The key criteria that are commonly used to assess potential landfill sites are described in the following paragraphs.

Topography

Topography is evaluated to determine if the site is compatible with the proposed staged development of a landfill. Drainage is important as it affects runoff impacts and collection of surface runoff from active faces of the landfill. Rolling topography is conducive to cut and fill development of disposal area lifts and also provides help in improving the aesthetic acceptability of the completed disposal areas. Rock outcrops and steep terrain are objectionable traits.

Soils and Geology

Potential sites which have a mixture of earth material types are usually most desirable for landfill development and operation. Low permeability (clay-like) soils can serve as liners (barrier layers) to protect groundwater. In some limited instances, natural clay deposits can serve as a liner in lieu of an engineered barrier. Medium to coarse grained soils are preferable for landfill cover and some specialized construction applications such as road beds, top soil, and earth-fill structures. Coarse-grained soils like clean sand and gravel can be used to construct leachate and gas collection systems. If these earth materials are unavailable on the site, they may need to be imported at higher costs.

Modern landfills have specially designed environmental control systems to contain leachate and potentially harmful gases. The integrity and reliability of these systems are highly dependent upon the landfill site's natural geologic features. Highly porous water-containing geologic formations often serve as water supply aquifers and are susceptible to contamination. Fault zones, landslides, sinkholes, and other unstable geologic conditions may threaten the integrity of liners and other environmental protection features and are, therefore, undesirable site characteristics. Site-specific soils and geologic data are needed to complete the permit application for any landfill under the Indiana Solid Waste Management Board Rules.

Groundwater Hydrology

It is important to locate a landfill away from groundwater resources. This is critical if the groundwater is used as a water supply or if it feeds surface water bodies. Even lined landfills have the

potential to leak pollutants and the risk to groundwater quality is evident. Concerns about groundwater may be reduced in areas where soils are likely to retain pollutants in leachate, or where groundwater resources are not present or unusable for other reasons.

Surface Water Hydrology

Floodplains, surface water bodies, wetlands and local drainage patterns are important considerations in siting a landfill. A landfill located within a floodplain or near a drainage course could require extensive engineering to control the potential effects of flooding, steam-bank erosion and undermining of landfill structures. In fact, Indiana's Solid Waste Management Board Rules specifically call for consideration during site selection of floodplain impacts such as washout of the landfill and reduction in the flood-carrying capacity of the floodplains. Flood frequencies, flow velocities and stream size are examples of factors which should be weighed in selecting a potential landfill site. Runoff also must be controlled from a proposed landfill under Indiana rules and, therefore, sites must be amenable to incorporating control structures and water quality treatment facilities as needed.

Traffic Impacts

Like a WTE facility, a landfill can also have profound effects on traffic patterns near a proposed site. The accessibility of the site must be judged based on routes from population centers, road quality, and existing traffic conditions. In rural areas with roads and intersections designed for light traffic, a landfill can have a major direct impact on traffic flow and a substantial secondary impact by deteriorating the roads.

Aesthetics

The aesthetics of a site are typically judged on the visibility of the site from residences and roadways and the compatibility of the active and completed landfill with the surrounding environment. Both odor and visual aesthetics need to be considered. Since little can be done to minimize the aesthetic impacts of a landfill, the aesthetic analysis concentrates on evaluating the separation of the facility from potentially offended observers.

Land Use Compatibility

Clearly the compatibility of a landfill with residential, commercial, or recreational land uses is minimal. Indiana requires a zoning analysis in the application for a solid waste disposal facility permit. Furthermore, confirmation from the appropriate local government of zoning approval must be

included with that permit application. Zoning is often a key to land use assessment, and changing existing zoning may involve significant public opposition. For landfills, sites in areas of low population density are generally preferred.

KEY PUBLIC INTEREST ISSUES

It is impossible to predict with any reliability what issues in a siting study will come to the forefront as far as the public is concerned. It is reasonable to assume that public concern will focus on important technical issues, and this is often the case. However, it is also quite possible that some marginal technical detail will be elevated to importance by public pressure. Public opinion is often influenced by:

- Emotional issues or emotional reaction to technical concerns.
- Prior experiences of the community or other nearby communities.
- Experience with the current performance of the solid waste disposal system.

One issue that always occurs when an "undesirable" facility is sited is the compatibility of the facility with the area. Certain public sectors will often favor siting new facilities near existing "undesirable" facilities such as wastewater plants and landfills. However, other sectors will view such siting practices as unfair and even discriminatory.

The most common public interest issues associated with siting WTE facilities and landfills are discussed in the following subsections.

WASTE-TO-ENERGY FACILITY ISSUES

The most common public interests related to siting a WTE facility often include air emissions from combustion, traffic effects from garbage trucks traveling to the facility, and aesthetic qualities of the plant. While any other concern may become a key issue, these three items are recurrent public interests.

Although not specifically a WTE facility siting issue, another common public concern is ash disposal. Questions related to ash disposal will most likely be raised by the public during siting

studies. Ash disposal plans need to be formulated to the point where acceptable answers can be provided.

Air Emissions

Air emissions from a WTE facility are generally regarded by the public as a human health risk. Major concerns are often related to emissions of acid gases, metals, and organic compounds. Furthermore, it is not unusual for public demands related to controlling such emissions to exceed national or state regulatory requirements.

The focus on air emissions during recent years has largely been related to trace organic compounds like dioxins, which have clear potential health risks due to the highly toxic nature of the compounds. Such concerns catch the attention of the public because of the adverse consequences of exposure to even small amounts of dioxin and because of the mystique that surrounds the formation chemistry, which is still largely unknown.

Siting analyses clearly must incorporate air quality modeling which predicts the ground level impacts of emissions from a WTE facility. Even more important is to present a complete description of the proposed pollution control equipment and the empirical data from modern facilities with the same devices which demonstrate the low emissions rates being achieved.

Traffic

Traffic is also likely to be a key public concern. Traffic seems to be an issue since increased traffic volume is potentially inconvenient and garbage trucks are aesthetically unacceptable vehicles. For these reasons, it is important for a siting study to include compelling predictions of traffic routing with respect to residential areas and traffic volume assessments with respect to the capability of the various roadways to accommodate the anticipated increases. In some situations, the use of transfer stations can be considered as a method to reduce the traffic impact of a proposed facility.

Plant Aesthetics

Aesthetic qualities are always in question when a WTE is sited. This often originates from the concept of a WTE facility as an ugly, smelly incinerator. Modern WTE facilities are designed to minimize odors and can be designed to include enhanced architectural features.

Municipal solid waste odor results from complex organic compounds derived mainly from decomposition of biodegradable material in the waste. At modern WTE facilities, waste is delivered, handled, and stored indoors. Combustion air for the furnace is drawn from the inside of the building in sufficient quantity to maintain negative pressure in the building. Therefore, air flows into the building and not out, keeping odors inside. During controlled combustion, sufficient heat and exposure are maintained so that nearly all the complex molecules are burned, and the resulting emissions are water vapor and relatively odorless carbon, nitrogen and sulfur oxides.

Visual aesthetics are largely a function of the physical location of the facility with respect to potential viewers. A site located near a major roadway or on a hill would be more likely to be seen than a location away from roads or residences and screened from view by trees or topography.

In locations where the visual aesthetics of the facility are a concern, landscaping and external architectural treatments can be used effectively to improve the looks of the building. WTE facilities are totally enclosed industrial operations that can be made to look like modern technical buildings; however, such designs do require additional capital costs.

LANDFILL ISSUES

The major public interest issues associated with siting of sanitary waste landfills are potential groundwater impacts, traffic, and aesthetics. Groundwater impacts and aesthetics concerns related to landfills are discussed in the following subsections. Traffic issues for landfills are basically the same as for WTE facilities as previously discussed.

Groundwater

A thorough investigation of groundwater hydrology is required for any proposed landfill site. Public attention to the possible impacts of groundwater contamination and the importance of available clean water resources are no longer regional issues linked to areas with limited water resources. Even in those areas of Indiana where water is normally relatively abundant, the public will have an appreciation for the importance of clean water and will expect clear and compelling proof that a proposed facility will not jeopardize water resources.

Aesthetics

The aesthetic issues for landfills are different from WTE facilities. There are only limited opportunities to improve visual aesthetics through contouring of the final surface and revegetation, or to reduce odors by specific operating and gas control techniques. The best method for reducing aesthetic impacts is to select a remote site with few nearby residences and limited visibility. A siting study must demonstrate that aesthetic considerations have been thoroughly incorporated in the site assessment.

COMMUNICATION AND PUBLIC INVOLVEMENT

Public support is key to any project's success. Entire projects have been stopped by residents whose concerns about a facility's site were not addressed. Residents have very personal concerns about a facility's impact on their daily life (noise, visual impacts, odor) and their families' long-term health (air emissions, groundwater pollution). These emotionally-charged concerns, combined with a growing public mistrust of projects involving waste materials, make residents very sensitive to the siting process.

Effective methods for addressing community resistance and concern are designed to keep residents informed and involved during the entire siting process. They are not designed to "sell" the project by convincing everyone to agree. The key is to provide community residents with:

- Complete and objective information to help them develop informed views.
- Public forums where they can express those views and become involved in the decision-making process.

It is important for decision-makers to understand that the community will be involved in the siting process, whether or not they are invited into the process through formal public meetings. Project opponents can confuse issues and play on the community's fears by making exaggerated charges and giving biased information. If residents do not have the facts needed to sort out the issues or if they feel excluded from the decision process, they could become obstructive. On the other hand, if residents are given objective information and a forum for their opinions, they can be creative partners in helping the district develop a community-supported facility.

PROVIDING PUBLIC INFORMATION

A public information strategy will be most effective if residents are kept informed from the very beginning and given straight facts about the facility and the siting process. Because resident concerns about landfills and WTE facilities are often personal, it is important that decision makers provide objective information and allow residents enough time to develop a thorough understanding of the issues. A well-designed public information campaign will be scheduled early in the siting process to give residents time for investigating siting issues before final siting decisions are made. Again, the point is to inform residents so that they can form educated opinions, not to manipulate residents or sway their opinions.

To nurture public trust and have productive public input, public information should be as complete as possible. Most important, residents should be told how and when officials will make siting decisions. By clearly describing the procedural aspects of the decision-making process, public officials can help residents understand when each issue will be addressed and when residents will have an opportunity to express their views. If possible, the procedure schedule should be released before the siting process begins so that residents will not feel excluded and will participate cooperatively.

Further, information on all technical issues should be released as it becomes available. Public officials should not assume that they know what issues will be important to people. In general, residents will be most interested in the issues that directly affect them and some residents will feel great urgency about issues that do not evoke broad concern. Finally, though public trust will be built when information is promptly released, information built on incomplete findings or preliminary decisions can damage the siting process by alarming different constituencies unnecessarily. Public officials are advised to determine whether the information reflects a balanced analysis.

Public information can be disseminated in a variety of ways such as through local media coverage, a "basic issues" brochure, a regular project update newsletter, press conferences, public workshops or speaking engagements. When deciding how to deliver a message, public officials should be sensitive to the audience for that information. For example, most residents may be satisfied with the information they can glean from news articles or a brochure. However, residents living near a proposed site likely are highly invested and would be better satisfied if officials updated them personally through workshops or other speaking forums. Such an approach gains effectiveness by giving residents some way to interact with officials, discussing the issues and expressing ongoing concerns. Residents gain confidence in the process and public officials keep a realistic perspective of public sentiment. At this point, a public information program evolves into a public participation program.

PUBLIC PARTICIPATION PROGRAMS

Decision-makers should not expect informed residents to be acquiescent. Rather, informed residents will develop a range of opinions that need expression. Public forums should be developed to give residents an opportunity to participate in the planning process by expressing their views, sharing facts and delivering criticisms. Such forums can range from informal updates at neighborhood meetings to a series of public hearings to a formally-convened Citizens Advisory Committee. The Citizens Advisory Committee process has proven to be very effective, though any strategy should also include some way for the general public to participate.

Decision-makers should also not be concerned that public criticism will destroy a project. On the contrary, well-designed public forums can produce creative new solutions to difficult siting problems and, at a minimum, give decision-makers a realistic perspective on what will make the project publicly acceptable. Further, public officials should be serious about incorporating public input into the siting decisions. To maintain public trust, officials should document how they have addressed public concerns in their decisions.

While an open public process can give officials insight into real public concerns, it can also help the public gain perspective on the tough choices facing a district. It is especially important for decision-makers to be open about the hard decisions, the decisions that cannot satisfy every public concern. But it is equally important for decision-makers to remain open-minded to resident suggestions that may open new avenues for compromise and public satisfaction.

Citizens Advisory Committees are normally the best forum for involving residents in the kind of detailed problem-solving encountered in a siting process. By working with a selected group of resident representatives, public officials give themselves a valuable resource and sounding board. A well-informed and active Citizens Advisory Committee can help officials evaluate the project from the public's point of view and build bridges between decision-makers and the residents with vested interest in the project.

As described above, Citizens Advisory Committees cannot fully replace the need for open meetings where the general public can express views. However, a committee does offer decision-makers an excellent opportunity to focus their attention on parties that are particularly invested in siting issues. To enhance the Citizens Advisory Committee's effectiveness, districts should be careful to include representatives of all particularly active critics or skeptics. Though all demands cannot be totally satisfied, properly managed Citizens Advisory Committee meetings can give critics a healthy place to turn criticism into suggestions. Again, public officials should remember that concerned residents will

get involved in the siting process and this involvement can be made more productive if they are "invited" to participate.

GEOLOGICAL MAPPING

The following is a listing of sources for geological information that could be used for locating suitable sites for sanitary landfills:

- United States Department of Agriculture
- Soil Conservation Service

These maps present fairly detailed surface soils information and are certainly a reference that should not be overlooked.

- Geological Survey

- Indiana Department of Environmental Management

The IDEM is in the process of preparing a series of maps of Indiana which feature exclusive criteria data for landfill siting.

PLANNING REFERENCE ON FUNDING AND FINANCIAL PLANS

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

MEANS OF FUNDING, METHOD OF FINANCING, AND PAYMENT FOR SERVICES

INTRODUCTION

As part of House Bill 1240 (HB 1240), the State of Indiana (the "State") has enacted legislation which deals with the funding of solid waste management planning activities in the State, the alternative methods of financing solid waste management facilities, and the method of charging tipping fees for solid waste disposal services. HB 1240 has provided a broad range of alternative methods of funding and financing solid waste management activities in the State. Presented below is a summary discussion of how the provisions of HB 1240 address these three issues.

It is important to note that the following discussion is based on the assumption that the responsibility for solid waste management in the State will be assumed at the county level in the form of a county solid waste management district(s). The following does not necessarily apply to actions taken by individual municipalities.

ESTABLISHING THE DISTRICT

HB 1240 differentiates between a "County Solid Waste Management District" or a "County District," which refers to a solid waste management district that consists of only one county, and a "Joint Solid Waste Management District" or "Joint District," which refers to a solid waste management district that consists of two or more counties. On or before July 1, 1991, each county in the State must, by ordinance of the county executive:

- join with one or more other counties in establishing a joint solid waste management district that includes the entire area of all the enacting counties; or

- designate itself as a county solid waste management district.

After a county has been designated as a county district or has joined with one or more counties in a joint district, a board of directors shall be appointed. The powers of a district include, but

are not limited to, the following with regard to financial matters:

- The power to impose district fees on the final disposal of solid waste within the district.
- The power to borrow money from the district planning revolving fund.
- The power to plan, design, construct, finance, manage, own, lease, operate, and maintain facilities for solid waste management.
- The power to levy a tax within the district to pay costs of operation in connection with solid waste management, subject to regular budget and tax levy procedures.

The district does not have the power to exclusively control the collection or disposal of solid waste within the district; however, if one or more of the governmental entities in a district, at the time of the formation of the district, is a party to a contract providing that the persons contracted with have the exclusive right to collect or dispose of solid waste within the jurisdiction of the governmental entity, the district may enter into an extension of that contract. The lack of ability to maintain solid waste flow control could impact the financing by the district of solid waste management facilities.

Each district is required to adopt, and submit to the commissioner for approval, a district solid waste management plan. Included among the requirements of the plan are to (1) set forth a description of the operational costs and capital costs of implementing the district plan and the proposed means of financing the implementation of the district plan; and (2) set forth the basis for setting fees, rates, and charges for use of any facility.

FUNDING

State

HB 1240 establishes the State Solid Waste Management Fund to provide grants and loans to promote recycling and the use of recycled materials. The principal source of money for the State fund shall be a $ .50/ton fee imposed, beginning January 1, 1991, on solid waste generated in Indiana and reaching final disposal (incineration or landfilling) in Indiana. The fee is collected at the time of final disposal. Out-of-state waste is assessed a different fee that is deposited into a fund for assisting with hazardous waste clean-up activities within the state.

County

After March 22, 1990, the county executive of a county in which a final disposal facility is located may impose fees on the disposal or incineration of solid waste at that facility. The amount of fees shall be established after a public hearing. The money in the county fund is to be used primarily to pay costs associated with the development of a district plan.

District

After a district has been established, the district board may impose fees on the disposal of solid waste in a final disposal facility located within the district. The amount of fees imposed shall be set by the board after a public hearing. The money in the district fund is to be used primarily to pay costs associated with the development and implementation of the district plan.

District Planning Revolving Loans

The State has established a district planning revolving loan fund for the purpose of providing loans to solid waste management districts. The fund is to be administered by the Indiana Department of Environmental Management ("IDEM").

A district may apply for a loan by filing an application with the IDEM on or before January 1, 1993. The maximum loan that may be made from this fund is either (1) $20,000 to a county district, or (2) $20,000 multiplied by the number of participating counties in the joint district.

The loans are to be repaid from any revenue available to the district, HB 1240 permits districts to levy a temporary property tax increase, with the approval of the government tax control board, for the expressed purpose of paying expenses incurred in the preparation of the district solid waste management plan.

FINANCING

Waste Management District Bonds

The district board may issue Waste Management District Bonds for the payment of the cost of the facility. Such bonds are special obligations of the district and are not a corporate obligation or indebtedness of the units that comprise the district. The Waste Management District Bonds, and the

interest on the bonds, are payable out of a special tax levied upon all of the property of the district. This special tax shall be collected and enforced by the county treasurer in the same manner as county taxes are estimated, entered, collected, and enforced. As the tax is collected by the county treasurer, the tax shall be transferred to the fiscal officer of the district.

The district may not issue Waste Management District Bonds that are payable by special taxation or fees in a total amount, including outstanding bonds already issued, exceeding 6 percent of the net assessed valuation.

Revenue Bonds

The district board may finance the cost of facilities by borrowing money and issuing Revenue Bonds. The Revenue Bonds are special obligations of the district and are payable solely from and secured by a lien upon the revenues of all or part of the facilities, whether or not the facilities are being financed with Revenue Bonds. The bond resolution may pledge and assign, for the security of the Revenue Bonds, all or part of the revenues or net revenues of the facilities.

The Revenue Bonds, and the interest on them, are special obligations of the district and are not a debt of the board, the district, or the units that comprise the district.

Waste Management Development Bonds

The board may issue Waste Management Development Bonds and make direct loans to users or developers for the cost of acquisition, construction, or installation of facilities, including real property, machinery, or equipment, in which event, the development bonds shall be secured by the pledge on one or more bonds or other secured or unsecured debt obligations of the users or developers.

If the board finds that a financing will be of benefit to the health or welfare of the district, the board may adopt a resolution which authorizes the issuance of Waste Management Development Bonds payable solely from (1) revenues and receipts derived from a financing agreement between the district and users or developers or (2) from payments made under a guaranty agreement by a developer, user, or any other person. The Waste Management Development Bonds are not a general obligation of the district.

A financing agreement must provide for payments in an amount not less than an amount sufficient to pay the principal of and interest on the Waste Management Development Bonds.

Bond Anticipation Notes

A district may make arrangements for short-term (less than five years) financing by issuing bond anticipation notes.

SOURCE OF PAYMENT

HB 1240 provides that a special taxing district is created in each solid waste management district for the purpose of providing persons within the district with solid waste management service. The special taxing district is coterminous with the territory of the district.

If necessary to pay principal or interest on any bonds, the district shall establish solid waste management fees that apply to all persons owning real property benefitted by waste collection, a facility for waste disposal, or both. The basis for establishing fees can include a flat charge for each residence or building, by weight or volume of the solid waste, the number of containers or bags, the difficulty associated with the collection or management of the solid waste, or any combination of these criteria.

The fees may be used to pay any of the following: (1) the cost of facilities for solid waste management, (2) the operation and maintenance of the facilities, and (3) the charges that may be pledged to the payment of principal and interest on Waste Management District Bonds or Revenue Bonds.

COMPARISON OF METHODS OF FINANCING

HB 1240 offers districts a broad range of long-term financing options. The Waste Management District Bonds are similar to general obligation bonds because they are payable out of a special tax levied upon all of the property in the district. The principal advantages to a district of issuing this type of bond are: (1) it is likely to result in the lowest possible interest rate on the bonds; (2) the cost of issuing the bonds is lower than other options; and (3) this type of bond is generally easier to market than revenue bonds.

However, in spite of these advantages, each district will want to carefully review the use of Waste Management District Bonds for waste management facilities. First, a limitation is placed on the amount of this type of bond which can be issued. The limit is equal to 6 percent of the net assessed valuation in the district. The issuance of Waste Management District Bonds would impact the ability

of a county to finance other major public works projects which may not be able to generate revenues. Many solid waste management facilities can be developed in such a manner as to be revenue producing projects capable of repaying revenue bonds. Each district and county will need to evaluate their own bonding capacity and future capital improvement projects.

Revenue Bonds offer the second long-term financing option. Under this method, the revenues of the facilities of the district are pledged to repay the Revenue Bonds. While these bonds are not a direct obligation of the district, nevertheless, there is a very high likelihood that the district will have to covenant to a bondholder that the district will charge whatever level of tipping fee is required to repay the Revenue Bonds and the municipalities within the district will have to execute an agreement whereby they will agree to pay whatever level of tipping fee is required to repay the Revenue Bonds.

The basic responsibility for payment by the district and municipalities under the Revenue Bonds scenario will be relatively similar to the Waste Management District Bonds; however, the bonding capacity is less likely to be impacted. Dependent upon how the transaction is structured, investors will probably be looking at the financial strength of the county or municipalities when considering this type of investment. The interest rate for Revenue Bonds is likely to be somewhat higher than the interest rate on Waste Management District Bonds.

The Waste Management Development Bonds will probably bear the highest interest rate of the three methods because of the relatively higher level of perceived risk. The repayment of these bonds is dependent upon a financing agreement with a developer or user or from a guaranty agreement by a developer or user. Depending upon how the financing is structured, many investors will look to the financial strength of the developer or user when considering this investment.

NECESSARY ACTIONS FOR FINANCING

Regardless of the method of financing a district ultimately selects, there are certain basic elements which must be in place for any solid waste management facility to be able to be financed. These items can generally be identified as follows:

- Is there enough waste in the district to support the size facility or facilities being considered?

- Does the district have the means to assure that the waste will actually be delivered to the Facility?

- Are competing facilities in the general area likely to lure the solid waste away by charging a lower tipping fee?

- Are all required permits and licenses necessary to construct and operate the facility actually in hand?

- Is the design or technology proposed for the facilities proven and sound? Will they meet existing and future environmental requirements?

- Has the developer/user signed a construction contract and/or an operating contract with a guaranteed construction cost and/or operating cost?

- Has the district executed long-term contracts for the sale of any by-products, such as compost material, recycled materials, or energy?

- Has a site been identified, obtained, and approved?

The development of a proposed solid waste management facility, from the point of initial concept to the point where it can be financed, can take two to six years, depending upon the type of facility, siting concerns, and the permitting process. Construction can require an additional one to three years. This lead time needs to be considered by a district when developing a solid waste management plan and considering means of funding and financing.