

# **B.4 Environmental Assessment**

**MICHIGAN DISPOSAL WASTE TREATMENT PLANT (MDWTP)**

**MID 000 724 831**

**2017 ATTACHMENT REVISIONS**


**Replaces Previous Attachment B.4 Environmental Assessment**

**FORM EQP 5111 ATTACHMENT TEMPLATE B4  
ENVIRONMENTAL ASSESSMENT**

This document is an attachment to the Michigan Department of Environmental Quality's (DEQ) *Instructions for Completing Form EQP 5111, Operating License Application Form for Hazardous Waste Treatment, Storage, and Disposal Facilities*. See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) §324.11118(3) and R 299.9504(1)(e) and R 299.9504(1)(b) establish requirements for conducting environmental assessments at hazardous waste management facilities. Before receiving an operating license, owners and operators of hazardous waste treatment, storage, or disposal facilities must evaluate the (proposed) facility's impact on air, water, or other natural resources of the state. The evaluation must also include a failure mode assessment. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for an environmental assessment for hazardous waste management units at the Michigan Disposal Waste Treatment Plant facility.

 Guidance for this template can be found in the DEQ's document titled "Contents of the Environmental Assessment."

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## **INTRODUCTION**

This environmental assessment for Michigan Disposal Waste Treatment Plant (MDWTP) describes current conditions, environmental impacts, and applicable exposure information for landfills and surface impoundments. The goals of the environmental assessment are to describe and discuss (1) the probable impact of the facility on natural resources, human life, and all environmental elements that affect these values; (2) probable unavoidable adverse effects of the facility; (3) alternatives for accomplishing the same objective; and (4) possible modifications that would minimize adverse effects.

An environmental assessment was prepared and submitted as part of previous operating license applications for MDWTP and Wayne Disposal Inc. (WDI), both located on the same property. The previous report, titled *Environmental Assessment, Solidification of Sludge Wastes, Van Buren Township, Wayne County, Michigan*, was originally prepared by Environmental Research Group, Inc. (ERG), and most recently revised in December of 2004 (Revision #4). Wayne Disposal, Inc.'s (WDI) 2012 permit application's environmental assessment described current environmental conditions and potential impacts of the development of Master Cell VI-F&G. Regional environmental conditions and most internal features of the WDI Site No. 2 facility have not changed materially since the previous environmental assessment report was prepared, with the exception of the changes reflected in the 2012 WDI environmental assessment. This environmental assessment updates the 2004 assessment to reflect the changes made during the 2012 assessment.

### **B4.A CURRENT CONDITIONS**

#### **B4.A.1 Facility Description**

Michigan Disposal Waste Treatment Plant (MDWTP) operates a hazardous waste storage and treatment facility in Southeast Michigan in order to serve the large urban-industrial concentration which exists in that portion of the state. This area has historically contained 50-55% of the state's population, and most of the motor vehicle and other manufacturing jobs in the state. As of 1970, approximately 650,000 persons were employed in automobile and other manufacturing categories (SEMCOG, February, 1977).

This concentration of manufacturing, along with a considerable amount of raw materials processing industries (steel, petrochemicals, etc.), generate large quantities of solid wastes. In addition, both solid and liquid hazardous wastes are generated by these basic raw materials and manufacturing industries.

Many of the sludge and liquid wastes are amenable to solidification using lime dust addition in the pug mill as operated by MDWTP.

The general unavailability of alternatives (e.g., stabilization of wastes using resins) or the infeasibility of alternatives (pyrolysis, incineration, land applications, use of out-of-state sites) at the scale of operation necessary to handle the region's quantity of hazardous wastes are the key factors in the need for continued operation of MDWTP. Scarcity of regulated, properly operated sludge and liquid waste handling facility close of major centers of manufacturing in Michigan would also likely result in improper disposal by individuals of hazardous or potentially hazardous wastes and cavalier disposal by "midnight operators." Because of the high water content of such wastes, there is a great danger that they could be disposed of in waters of the state, a storm sewer or sanitary sewer, and cause environmental damage. Furthermore, without a secure, licensed facility available in Southeast Michigan, the resulting large reward/risk ratio involved in waste processing becomes, in effect, a great incentive for persons to attempt disposal at other sites not authorized to receive sludges and liquids which are hazardous waste by falsifying manifests, or representing hazardous materials as non-hazardous.

The nationwide mandate to avoid future environmental disasters due to improper disposal of hazardous wastes is the final factor which makes continued operation of MDWTP as a solidification operation for certain hazardous sludges and liquids, a virtual necessity for the general public health of Michigan residents. In short, the risks associated with a lack of a facility of this type in Southeast Michigan are greater than those related to acceptance of hazardous wastes at such a facility.

The objective of MDWTP is to provide a licensed storage and treatment facility for acceptance of hazardous solids, sludge and liquids in a manner which provides proper environmental safeguards to surrounding areas. MDWTP proposes to operate the facility in conformance with stipulations agreed to by MDEQ.

#### **B4.A.2 Description of Existing Environmental Conditions**

A description of existing environmental conditions at the facility and any surrounding areas that may be affected by the facility is included in this section. Detailed information that is provided in other attachment templates is not repeated here; however, references to appropriate attachment templates are provided. Maps, photographs, and other relevant information that are not included in other templates are included in this section. Important ecological relationships, functions, and interdependence of physical environmental elements and social and economic elements are discussed. Factual information from publications, reports, or personal communications is documented, with sources cited.

##### ***B4.A.2(a) Climate***

Michigan has a temperate climate with well-defined seasons. Cloudy days are more common in Michigan than in most states, in part because of the condensation of water vapor from the Great Lakes. Climatic conditions in Wayne County are monitored by three U.S. Weather Bureau Offices, which include:

1. Detroit-Willow Run Station;
2. Detroit Metropolitan Airport Station; and
3. Willis Station of Washtenaw County

Climatological information is based on summary data collected by the National Oceanic and Atmospheric Administration (NOAA) at the Detroit Metropolitan Airport and the Willis Stations (MDOA, 1974). Additional detailed information can be obtained at the NOAA website ([www.crh.noaa.gov/images/dtx/climate/plots](http://www.crh.noaa.gov/images/dtx/climate/plots)).

WDI Site No. 2 lies approximately 20 miles inland (west) from Lake Erie and 35 miles inland (southwest) from Lake St. Clair. Both of these lakes play roles in determining local climatic variations; however, the site's inland location reduces lake effects somewhat. The main influence of the Great Lakes on the region is increased winter cloud cover (approximately 184 days per year are cloudy and 23 days per year foggy). Cloud cover helps to moderate winter temperatures. During winter months, the annual mean of daily minimum temperature is about 37.9°F. Record low temperatures, as low as -19°F, have occurred in December and January. The last day of freezing temperatures is usually in early May. The first day of freezing temperatures is usually in the period between September 29 and October 7. The mean number of days with a temperature below 32°F is between 139 and 152 days per year.

Summers in this region are generally warm and sunny, although brief storms usually occur every few days. Summer days with greatest temperatures (usually in June or July and as high as 105°F) are often accompanied by high humidity. The annual mean number of days with a temperature of 90°F or above is around eleven days. The average relative humidity for the year is 70 percent.

The annual mean daily maximum temperature is approximately 58.6°F. The overall mean monthly temperature is 48.5°F.

Precipitation is fairly evenly distributed throughout the year. Thunderstorms occur approximately 34 days per year. Mean annual precipitation is approximately 32 inches as rain or snow (in rain equivalents) and the historic greatest daily maximum is 3.6 inches. The numbers of days with 0.01 inches of precipitation or more is typically between 71 and 131 days. Snow and ice pellets deposit approximately 35 inches annually with a monthly maximum of about 19.5 inches falling sometime in February or March. The greatest daily fall averages 9.5 inches. The prevailing wind direction is from the southwest and mean annual wind speeds are 10.0 miles per hour. The fastest one-minute wind speed recorded for the Detroit Metropolitan Airport was for a southwest 87 mph wind in June of 1973. The strongest one-minute wind speed for the Willis Station was 77 mph occurring in July of 1960. The wind rose for Detroit Metropolitan Airport, Michigan indicates that the highest wind speeds are more often southwesterly and westerly winds. Michigan is in the northeast fringe of the tornado belt. There is a lesser occurrence of tornadoes in this region due to the influence of colder waters in Lake Michigan.

#### ***B4.A.2(b) Topography***

Detailed topographic information are provided in Attachment A.13 Topographic Map and B3 Hydrogeological Report. Topographic elevations in Van Buren Township range from approximately 715 feet above mean sea level (MSL) to 651 feet MSL (Belleville Lake). Overall, the land generally slopes gently southeasterly toward Lake Erie.

The topography of the area near WDI Site No.2 is nearly flat ranging from 715 to 695 feet MSL, with the lowest points on the property being at the outlet of the constructed perimeter drains.

#### ***B4.A.2(c) Geology***

The firm of Neyer, Tiseo & Hindo, Ltd. (NTH) completed a hydrogeologic investigation of the site in Van Buren Township, Wayne County, Michigan (July, 1981). Their investigation combined a program of soil borings, monitor well and piezometer installation, and laboratory testing with information obtained during a preliminary hydrogeologic investigation. Additionally, a site specific hydrogeologic investigation for the proposed MC VI-F &G development at WDI Site No. 2 was completed by NTH Consultants, Ltd. (NTH) in 2008. The investigation included test borings, observation wells, and laboratory tests to provide detailed information on the subsurface geology of the site. The geologic description refers to the natural subsurface conditions prior to landfill development. A general summary of the site geology based on the results of the investigations is presented below.

Overlying the site is a surface deposit of brown and gray fine to medium sand containing varying

amounts of silt. This sand represents a deltaic deposit according to Mozola (1969). In some areas, the shallow sand is underlain by sandy silt that is likely lacustrine in origin. The deltaic and lacustrine materials are underlain by a silty clay glacial till over the entire site. The till contains varying amounts of sand and gravel incorporated within a silt and clay matrix. At its base, the till grades to primarily granular material, progressing from gray clayey silt, to silt, and eventually an extensive deposit of gray silty fine sand. This lower sand contains zones of both finer and coarser material and it is sufficiently extensive to be considered a usable aquifer. Underlying these unconsolidated deposits is dark brown or black shale considered to be a member of the Antrim Formation. The shale is underlain by the Traverse Group, a carbonate aquifer that is only infrequently used as a water supply within the region (Mazola, 1969).

For descriptive purposes, the subsoil strata in the area of WDI are subdivided into five major strata:

1. **Surface Sand** – The granular surface stratum consists of brown and gray fine to medium sand with varying amounts of silt. This sand is removed as part of landfill construction.
2. **Silty Clay** – An extensive, relatively thick deposit of cohesive glacial till.
3. **Transition Silt** – The silty clay till generally grades downward into clayey silt, silt and finally into silty fine sand.
4. **Aquifer Sand** – Underlying the transition silt is a stratum of granular soil ranging from gray silty fine sand to coarse sand and gravel.
5. **Bedrock** – Antrim Formation.

#### ***B4.A.2(d) Soils***

Eight different soil types are found in the vicinity of property in Van Buren Township, Wayne County. No particular distribution pattern of these soil types is apparent. The size of various deposits range from quite small (approximately 10 acres) to quite large (approximately 100 acres). The most common soil type found in the vicinity is Thetford loamy sand and on-site it is mostly Wasepi loamy sand. In general, the surface soil on the site and in the vicinity is a loamy sand type. Slopes range from flat to no greater than 6%, the subsoil is coarse, drainage is generally not good, and permeability is moderate. All of the soil types are suited for the commonly grown crops in Wayne County including corn, wheat, oats, soybeans, and hay. Poor spring drainage, low moisture retention in the summer, wind erosion, and inadequate organic content, however, are characteristics of loamy sand soils which can limit their productivity. Listed below are the three soil types on the property as identified in the Soil Survey of the Wayne County Area, Michigan by the USDA Soil Conservation Service (1977).

1. Gr - Gravely loam fine sand
2. ThA - Thetford loamy sand
3. WaA - Wasepi loamy sand

In the vicinity there are five other soil types:



1. BnB - Boyer loamy sand
2. Gf - Gilford sandy loam
3. OaB - Oakville fine sand
4. SpB - Spinks loamy sand
5. TfA - Tedrow loamy fine sand

A summary of the characteristics, limitations, and capabilities of these soils is found in Table B4.A.1.

**TABLE B4.A.1: Surface soils found on the site -- Section 17 and 18 of Van Buren Township, Wayne County, Michigan**

SOILTYPE	SHAPE OF DEPOSITS	SIZE	SLOPE	SUBSOIL	DRAINAGE	PERME-BILITY	MANAGE-MENT CONCERNS	CAPABILITY
SpB	Irregular,	3-30A	0.6%	coarse	good	Moderately rapid	wind erosion moisture organic content	III S-1 Corn, wheat, oats, soybeans, and hay.
Gr	Irregular,	2-200A	0-2%	coarse	poor	Moderately rapid	drainage wind erosion organic content	III W-3. Corn, soybeans, wheat, oats, and hay
Gf	irregular	5-200A	0-2%	coarse	poor	Moderately rapid	Drainage moisture conservation	III W-3. Corn, soybeans, wheat, oats and hay.
ThA	irregular	3-320A	0-2%	coarse	poor	Moderately slow	Drainage wind erosion fertility	III W-2. Corn, wheat, oats, soybeans, and hay.
WaA	irregular	3-320A	0-2%	coarse	poor	moderately slow	Drainage wind erosion moisture conservation	II W-2. Corn, wheat, oats, soybeans, and hay.
BrB	irregular, convex	5-90A	0-6%	coarse	good	Moderately rapid	wind erosion soil moisture organic content	III S-1. Corn, wheat, oats, soybeans, and hay.
OaB	irregular or	2-160A	0-6%	coarse	moderate	very rapid	wind erosion soil moisture organic content	IV S-1. Wheat, oats and hay. Source of sand.
TfA	irregular on	2-50A	0-2%	coarse	poor	Moderately slow	Drainage wind erosion organic content	III W-2. Corn, wheat, oats, soybeans and hay.

\*Source\* USDA, Soil Conservation Service in cooperation with the Michigan Agricultural Experiment Station, Soil Survey of Wayne County Area, Michigan. November 1977.

**B4.A.2(e) Hydrology**

Groundwater in the vicinity of the facility occurs in the surface sand, the glacial sand aquifer and the upper part of the bedrock formation. The glacial sand aquifer is the uppermost aquifer with respect to landfill monitoring. Within most of the site, the glacial sand aquifer and the bedrock are in direct hydraulic connection. However, at the north site boundary the glacial sand aquifer is separated from the bedrock by a sequence of clay and the hydraulic connection is limited. Details of the hydrogeologic units present underlying the facility is described in detail in the Groundwater flow in the glacial sand aquifer is to the south toward Belleville Lake and flows at approximately 0.01 feet per day. The surface sand unit is removed as part of landfill construction and is thus generally not present at the site. Groundwater within the surface sand is diverted around the site by a perimeter drain and is discharged to surface water at two locations.

Runoff patterns and surface water flow control on-site consists of four sub-watersheds designated as the North Sedimentation Basin (NSB), the Northwest Sedimentation Basin (NWSB) the South Sedimentation Basin (SSB) and the Lined Pond. The storm water management system for each on-site watershed includes a network of conveyance structures (e.g., ditches, culverts, pipes, etc.) and one collection structure. The four watersheds consist primarily of disposal areas with interim cover, closed landfills, and pavement. The vast majority of storm water generated from paved areas including MDWTP, is managed as “potential contact storm water” and is collected in a lined pond. The storm water generated from interim cover, final cover and other unpaved surfaces is managed as “non-contact” runoff and is collected in one of three sedimentation basins.

Storm water runoff collected in the NSB, NWSB and SSB is treated by sedimentation, filtration and activated carbon and then discharged to the Quirk Drain in accordance with a National Pollutant Discharge Elimination System (NPDES) permit issued to WDI by the Michigan Department of Natural Resources and Environment (MDNRE). The runoff collected in the NSB is pumped on demand into a ditch that leads to the SSB for treatment prior to being discharged to Quirk Drain. This current watershed configuration was completed in January 2009. Runoff collected in the Lined Pond is treated at the on-site waste water pre-treatment plant and discharged to a Publicly Owned Treatment Works (POTW) in accordance with an Industrial Pretreatment Permit (IPP) issued by the South Huron Valley Utility Authority (SHVUA).

**B4.A.2(f) Land Use and Zoning**

Based on information gathered in 2000 by the Southeast Michigan Council of Government (SEMCOG), land use for Van Buren Township, which represents the boundary of the study area, the following summary information is provided directly from this agency’s most recent available annual report.

## Charter Township Of Van Buren

46425 Tyler Rd  
 Belleville, MI 48111-5217  
<http://www.vanburen-mi.org/>



Estimated Population: 27,377  
 Area: 36.1 square miles

Land Use / Land Cover (in acres)	SEMCOG 2000	Change 1990-2000
<b>Residential</b>	<b>4,368 18.9%</b>	<b>402 10.1%</b>
Single-Family	4,066 17.6%	336 9.0%
Multiple-Family	302 1.3%	66 28.0%
<b>Non-Residential</b>	<b>5,081 22.0%</b>	<b>659 14.9%</b>
Commercial and Office	275 1.2%	58 26.6%
Industrial	747 3.2%	292 64.3%
Institutional	192 0.8%	-41 -17.7%
Transportation, Communication, and Utility	3,205 13.9%	236 7.9%
Cultural, Outdoor Recreation, and Cemetery	662 2.9%	114 20.9%
Under Development	777 3.4%	750 2,750.9%
Active Agriculture	4,473 19.4%	-1,850 -29.3%
Grassland and Shrub	2,466 10.7%	-135 -5.2%
Woodland and Wetland	4,590 19.9%	166 3.8%
Extractive and Barren	0 0.0%	0 -
Water	1,325 5.7%	9 0.7%
<b>Total Acres</b>	<b>23,080 100.0%</b>	<b>0 0.0%</b>

As shown on the summary information, land-use in Van Buren Township is highly diversified with nearly equal proportions of residential, non-residential, agricultural and undeveloped woodland and wetland. The most recent zoning map for Van Buren Township (2005) shows most of the WDI property is zoned as M-2 General Industrial, except for MC which is shown as Ag Agricultural and Estates.

In the areas immediately surrounding the property, there are currently a number of other various land uses. These include single-family and multi-family residential areas, air transportation, recreation, public/semi-public and utilities, as described below in relation to their location in relation to the landfill site.

**Single-Family Residential:** The nearest significant single-family residential area is located ¼ mile east of WDI. This housing development is known as the Quirk Road Subdivisions. The proposed development is approximately 1000 feet further west from this subdivision than the existing units at Site No.2.

**Multi-Family Residential:** Immediately to the south of the site, across I-94, is a multi-family complex named Providence at Harbor Club that consists of 1,145 units.

**Air Transportation:** Willow Run Airport occupies approximately 1,842 acres in section 7, 8, 17, and 18 of Van Buren Township and is located immediately north and west of WDI. It was originally constructed during World War II. Willow Run serves cargo, corporate, and general aviation clients. The airport offers five runways, 24-hour FAA tower and U.S. Customs operations. The airport accommodates small private planes as well as international 747 cargo jets.

**Recreation:** To the east of the northeast tip of the property is a small recreation area known as Van Buren Little League Park (also known as Lot B). This property is owned by WDI/Site No. 2 and is designated for use by the local community. To the benefit of the community WDI, in agreement with Van Buren Charter Township, is completing upgrades to the park for public use. In addition, a gun shooting range is also located on WDI property and is designated for use by the Township Public Safety Departments and others.

**Public/Semi-public and Utilities:** This classification includes schools, churches, telephone, and electrical substations, a fire station and township offices. Neighboring the site to the northeast is the Environmental Research Institute of Michigan which does remote sensing research via satellite and airplane. Approximately 320 acres is classified semi-public in the area of this non-profit organization's facilities. The Van Buren Township Offices are located just east of the landfill, across Beck Road. The closest public education facility is located at 47097 McBride Ave, Belleville, MI, just east of the facility, approximately 0.1 miles from the eastern property boundary and approximately 1 mile from the active fill areas at WDI.

**Development Trends:** A Master Plan for the entire Van Buren Township was completed in 1989. Since then, Van Buren Township approved a South Side Master Plan in 2007. The South Side Master Plan does not include the WDI property but does include the zoning maps for current and projected uses. Currently, most of the site, including the cell VI F&G property, is zoned as General Industrial and the future use shows the property as Parks/Open Space. Based on the projected and desired development described in the plans, it does not appear that the land use surrounding the WDI facility will change substantially. Therefore, it does not appear that incompatible land uses are likely to encroach on the area surrounding the site. Additionally, restrictive deeds are in place to inform

#### ***B4.A.2(g) Historical or Archaeological Resources***

In the Huron River Basin, Wayne County and Washtenaw County, archaeological resources have been found at different sites. Fluted projectiles (arrow heads) from Paleo-Indian occupations (post-glacial time period) have been found in several locations in Wayne and Washtenaw Counties (Fitting, 1975). These early occupants of the Great Lakes were hunters and left behind

the remains of their trade. Other sites in Wayne County have found burial artifacts from the later Indian culture (the Late Woodland Tradition). In southeastern Michigan, sites were characterized by two major traditions: the Wayne and Young (Fitting, 1975). The sites were principally believed to be burial grounds of Indian cultures living in the eastern United States. To date, during the development of the existing WDI facility over the past 30-plus years, no archaeological artifacts have been discovered.

**B4.A.2(h) Social Environment**

The social environment, in terms of demographics and infrastructure of the area, is discussed in the following two subsections.

**B4.A.2(h)(i) Demographics**

The SEMCOG community profile based on the 2000 census provides the most current information describing the characteristics of the area near the facility development including People, Economy & Jobs, Housing, Transportation and Land Use. The full SEMCOG community profile is provided in Appendix A, SEMCOG Community Report. Also included in this Appendix is the SEMCOG statistics for the City of Belleville, Wayne County and Wayne County not including the City of Detroit. As shown on the following table, Van Buren Township, the host community, and the nearest city, Belleville, have similar demographics to the rest of Wayne County if the City of Detroit is excluded.

Area	Median Income	Per Capita Income	Households in Poverty	Population Black	Population Hispanic
Wayne Co.	\$40,776	\$20,058	14.9%	41.9%	3.7%
Wayne Co. (not incl. Detroit)	\$50,848	\$24,636	7.6%	8.3%	2.7%
Van Buren Twp.	\$50,984	\$24,820	7.3%	12%	2.2%
Belleville	\$44,196	\$25,947	7.6%	7.9%	2.5%

**B4.A.2(h)(ii) Infrastructure**

Infrastructure can be defined as the basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function. The term typically refers to the technical structures that support a society, such as roads, water supply, sewers, power grids, telecommunications, and so forth. Viewed functionally, infrastructure facilitates the production of goods and services; for example, roads enable the transport of raw materials to a factory, and also for the distribution of finished products to markets. In some contexts, the term may also include basic social services such as

schools and hospitals.

Support systems for Van Buren Township include adequate fire and law enforcement protection, sewage treatment, solid waste disposal, water supply, electricity, natural gas, telephone, and transportation, as detailed below.

Public Works (Water & Sewer Division)

Van Buren Township contracts with the Detroit Water and Sewerage Department (SWSD) to purchase about 1 Billion gallons of water every year. The treatment plant that provides water to Van Buren Township customers is the Southwest Treatment Plant in Allen Park. Locally sewer services are provided by the City of Detroit and South Huron Valley Utility Authority. Information was provided by the Charter Township of Van Buren, Department of Public Works.

Charter Township of Van Buren  
Department of Public Works  
Water & Sewer Division  
46425 Tyler Road  
Belleville, MI 48111  
Phone: 734-699-8925  
Fax: 734-699-8958

Law Enforcement

Van Buren Township provides law enforcement for the township except in the city of Belleville, which has its own police department. The Van Buren Township police department includes administrative and records keeping staff, a detective bureau, a traffic services division, animal control and a K-9 division, dispatch, patrol division, reserves division, chaplains and a community policing program. Wayne County Sheriff's Department and Michigan State Police also patrol the major highways in the area: I-94, I-275 and US-12. The State Police post is located nearby in Ypsilanti.

Schools

Van Buren Township is served by two public school districts: Van Buren School District and Lincoln Consolidated School District, one private school and several pre-school and day care facilities. The following list of schools was identified for Van Buren Township:

Van Buren School District

555 W. Columbia Avenue, Belleville, MI

Belleville High School,  
501 West Columbia Avenue, Belleville, MI 48111 (734) 697-9133

North Middle School  
47097 McBride Avenue, Belleville, MI 48111 (734) 697-9171

South Middle School  
45201 Owen Street, Belleville, MI 48111 (734) 697-8711

Edgemont Elementary School  
125 South Edgemont Street, Belleville, MI 48111 (734) 697-8002

Elwell Elementary School  
17601 Elwell Road, Belleville, MI 48111 (734) 697-8277

Haggerty Elementary School  
13770 Haggerty Road, Belleville, MI 48111 (734) 697-8483

Rawsonville Elementary School  
3110 Grove Road, Ypsilanti, MI 48198 (734) 482-9845

Savage Elementary School  
42975 Savage Road, Belleville, MI 48111 (734) 699-5050

Tyler Elementary School  
42200 Tyler Road, Belleville, MI 48111 (734) 699-5818

Early Childhood Development Center  
123 South Edgemont Street, Belleville, MI 48111 (734) 699-2180

Lincoln School District  
Bessie Hoffman Elementary School  
50700 Willow Rd, Belleville, MI 48111

Child's Elementary School  
7300 Bemis Rd, Ypsilanti, MI 48197

Lincoln Brick Elementary School  
8970 Whittaker Rd, Ypsilanti, MI 48197

Lincoln Model Elementary School  
8850 Whittaker Rd, Ypsilanti, MI 48197

Lincoln Redner Elementary School  
8888 Whittaker Rd, Ypsilanti, MI 48197

Keystone Academy School District  
47925 Bemis, Belleville, MI 07109 (734) 697-9470



### Fire Protection

Van Buren Township has two fire stations. Both are staffed 24/7/365 with two personnel at each station. These personnel are assisted by a full-time fire chief, full-time fire inspector, and up to 35 other part-time personnel that respond to the station as an incident requires, based on their availability. The 35 personnel are considered off-duty but may return for “call backs” if requested (i.e., house fire, chemical spill, major car crash, or aircraft crash). The “on-duty” personnel are all part-time employees and are part of the 35 total personnel. The Van Buren Township stations have 11 vehicles in their fleet: 4 fire Engines, 1 Aerial Ladder Truck, 1 Heavy Rescue Truck, 1 Utility Pick-up, 1 Mini-pumper, and 3 Administrative vehicles. Van Buren has a fully hydrant community and provide first responder care to medical emergencies or traumas. Additional information can be obtained by visiting the Van Buren Township website at <http://www.vanburen-mi.org/Department/Fire.html>.

### Security

At the facility, the site is secured by a systematic plan of management. During hours of operation, all traffic must check in at the office to register driver, company, and materials for disposal. These wastes are visually inspected and sampled. At the gate, a camera monitors all activities on a 24-hour/7-day basis. After hours, gates and entrances are monitored by security personnel.

Furthermore, the entire WDI site has perimeter security fencing around its boundaries. This fencing consists of woven wire and barbed wire fencing. Access to the WDI facility is through a single controlled entrance gate, with a guard on duty at all times off the North I-94 Service Drive. Back-up, supporting security is provided by the following agencies:

Van Buren Police Department  
46425 Tyler Rd Belleville, MI 48111  
(734) 699-8930  
<http://www.vanburen-mi.org/Department/Police.html>

Belleville Police Department  
6 Main Street, Belleville, MI 48111  
(734) 699-2710

### **B4.A.2(i)      Transportation**

Transportation routes to the facility consist of Interstate highway I-94 and the surface road North I-94 Service Drive. Traffic entering and exiting the facility must use the N.I-94 Service Drive to the Rawsonville Road exit off Interstate I-94 located just west of the facility. Trucks do not pass through any residential areas going to and from the facility. On-site, transportation follows the

haul road to either the MDI treatment facility or directly to the transfer box where trucks are off-loaded into a waste transfer box, and then loaded into dedicated on-site dump trucks. Waste is then transported to the HWMU for disposal. Site access roads and a site perimeter road are used for employee traffic and site maintenance vehicles.

#### **B4.A.2(j) Air Quality**

The most notable potential impacts to air quality by the proposed operations would be odors and fugitive dust. Many of the wastes brought to the disposal site have organic or chemical odors. Mixing of lime into these wastes also produces an odor. Since the perception of odors is a subjective observation, it is difficult to assess the public reaction to odor. Even odors that are generally considered pleasant, such as the baking of bread, are considered by some as a nuisance or objectionable on a day-in, day-out persistence.

Fugitive dust is created by adding lime flue dust and by the truck traffic traveling along roads to currently operating disposal areas. The lime flue dust is composed of very fine particles and is susceptible to conveyance by wind. This poses special problems when loading lime dust, such as when the baghouse malfunctions. A face mask is worn by workers at all times to prevent dust inhalation. Also, this dust will increase the total suspended particulate (TSP) concentrations in the air within the immediate vicinity of the site.

All other air quality standard parameters (SO<sub>2</sub>, CO, O<sub>3</sub>, NO<sub>2</sub>, Pb) would be more affected by the nearby presence of a major highway (I-94), the Willow Run Airport, a gravel operation, and a car manufacturer than by the facility.

#### **B4.A.2(k) Noise**

Sources of noise include trucking operations from truck entering and exiting the facility hauling waste as well as on-site trucking and construction equipment to haul and compact waste. Additional noise is generated from the processes at Wayne Energy Recovery and the Wayne Disposal, Inc. Company policy requires that its employees wear proper hearing protection when working in areas where the noise levels exceed OSHA thresholds.

A constructed earthen perimeter berm is located along the southern boundary of the site. The berm is heavily vegetated with native plantings, including: shrubs, trees and grasses. The earthen berm, which has an average height between 10 and 20 feet, acts as a visual screen, but due to the baffling effect of planted vegetation, also provides a sound buffer from noise associated with facility operations. A vegetative buffer exists along the eastern boundary. The northern and western property lines are bordered by the Willow Run Airport where general public is prohibited. The noise generated from the adjacent Willow Run Airport during take offs and landings generate far greater noise that produced by WDI operations.

#### **B4.A.2(l) Appearance and Aesthetics**

The perimeter of the facility, in view of the public along the I-94 service drive, includes an earthen berm approximately 10 to 20 feet in height. The berm is heavily vegetated with shrubs, trees and grasses. The earthen berm acts as a visual screen to block view of the facility from street view.

The existing facility impacts aesthetics due to episodes of odor and fugitive dust. Sewage sludge and lime flue dust can create an objectionable odor to residents in the area. Odors are magnified by stagnant air masses and high humidity. Winds carry odors offsite but can also disperse them under the proper conditions. On days of high humidity and mild southerly winds, odors will pose problems to residents on the eastern edge of the site.

Fugitive dust is an intrinsic problem to any industrial operation. The present dust control program of watering roads has limited this impact. Dust can become a nuisance to local residents if unmanaged. However, lime dust on vehicles, pug mill structure, etc., can be blown away and will contribute to TSP.

#### **B4.A.2(m) Terrestrial Ecosystem**

The characteristics of the terrestrial ecosystem in terms of flora, fauna, and critical habitat were primarily present in the approximately 21.5-acre parcel that has since been removed as part of WDI's construction of MC VI G.

##### ***B4.A.2(m)(i) Flora***

In general, the plant species which make up the terrestrial habitat in the area are relatively common to the region; therefore this terrestrial habitat is not considered critical. Trees larger than five inches in diameter at breast height are protected under local Van Buren Township ordinance. That ordinance also includes special provisions for the regulation of "landmark trees". Authorization from Van Buren Township is required for the removal of trees larger than five inches in diameter at breast height as well as "landmark trees".

The terrestrial habitats include primarily mature woods and young woods but also have small areas of scrub vegetation and old field. The landform is nearly level to slightly sloping, with soils consisting of loamy sand. Common plant species in the mature woods include American elm (*Ulmus Americana*), shagbark hickory (*Carya ovate*) red oak (*Quercus rubra*), basswood (*Tilia Americana*) common buckthorn (*Rhamnus cathartica*) and prickly ash (*Zanthoxylum americanum*). Common plant species in the young woods include eastern cottonwood (*Populus deltoids*), silver maple (*Acer saccharinum*), Siberian elm (*Ulmus pumila*) and common buckthorn. The scrub area includes common plant species as common buckthorn, gray dogwood (*Cornus foemina*) red ash (*Fraxinus pennsylvanica*) saplings, autumn olive (*Elaeagnus umbellata*), multiflora rose (*Rosa multiflora*), black raspberry (*Rubus occidentalis*) and tall goldenrod (*Solidago altissima*). Common plant species in the old field habitat include tall goldenrod, tall

fescue (*Festuca arundinacea*), Queen Anne's lace (*Daucus carota*), hairy aster (*Aster pilosus*), common teasel (*Dipsacus follonum*), autumn olive and red ash saplings.

This parcel is bordered on the north and south by closed landfill cells, on the east by the abandoned Old Denton Road and active landfill operations, and on the west by Willow Run Airport. The closest natural habitats which are those associated with Willow Run to the west and Belleville Lake to south. These habitats are in excess of 2,000 feet from the parcel. This isolation distance limits the ability of the parcel to support a diverse fauna.

***B4.A.2(m)(ii) Fauna***

Mammals that are most likely to use the property are typical of disturbed urban/suburban habitats and include species such as raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), opossum (*Didelphis marsupialis*), eastern cottontail rabbit (*Sylvilagus floridanus*) and meadow vole (*Microtus pennsylvanicus*). Reptile and amphibian use likely includes eastern garter snake (*Thamnophis butleri*), eastern American toad (*Bufo americanus*), northern leopard frog (*Rana pipens*) and gray tree frog (*Hyla versicolor*). Bird species likely to feed, roost and/or nest in the terrestrial habitat include common songbirds, as well as raptor species which perch in the trees while hunting the adjacent grasslands.

***B4.A.2(m)(iii) Rare or Endangered Species***

During the MDNRE wetland permit application process (referenced in 2.14 Aquatic Ecosystem), the MDNRE advised WDI of the possible local presence of one State-protected bird species as well as one relatively rare (special concern) bird species. These species include:

<u>Common Name</u>	<u>Status</u>	<u>Scientific Name</u>
Henslow's sparrow	State endangered	<i>Ammodramus henslowii</i>
Grasshopper sparrow	Special concern	<i>Ammodramus savannarum</i>

According to the Henslow's Sparrow Species Abstract prepared by the Michigan Natural Features Inventory (2004, Michigan State University Board of Trustees), Henslow's Sparrow is a grassland species which is rarely encountered in grasslands of less than 250 acres in size. As it relates to the Grasshopper Sparrow, according to information provided by the MDNRE (09 September 2010, Lori Sargent email to Jeremy Richardson), the Grasshopper Sparrow can be found in a wide range of grassland, old field and agricultural habitats.

The subject property does not contain grassland areas of a size to provide significant habitat to either of these species of sparrow. A January 18, 2011 search of the Michigan State University Extension's Michigan Natural Features Inventory (MNFI) web database (updated on December 10, 2010) indicates both species of sparrow are known from the adjacent Willow Run Airport which has large expanses of grassland. The Grasshopper Sparrow is also known from the Fons Capped Landfill approximately a mile to the west of the WDI facility.

The MFNI database search also indicated the historical occurrence of one State-threatened plant species and four non-protected but rare State special concern plants species from the vicinity of the proposed project; however these four other records span the time period from 1895 to 1931 and have a mapping precision between ranging from six square miles up to 15 square miles. Given the age, low mapping precision, and lack of reference by MDNRE, no impact to these plant species is anticipated.

No protected or rare species or other unique natural features were observed on the subject property during the wetland and woodland evaluations performed by King & MacGregor Environmental, Inc. or by MDNRE representatives when they were on site. Based upon those evaluations, the lack of significant habitat for the protected and rare species known from the project vicinity, and the issuance of the MDNRE draft wetland permit without a required statement of no effect for impacts to protected species, no impacts to Federal or State endangered, threatened or rare species are anticipated.

#### ***B4.A.2(m)(iv) Critical Habitat***

The existing terrestrial habitat is proposed to be entirely impacted. The existing vegetation will be removed. Mammals and birds will mostly be displaced. Some reptiles and amphibians will be displaced; however, most on-site reptiles and amphibians will likely suffer mortality from construction activities. The proposed impact to this small amount of terrestrial habitat with its isolated setting, its history of disturbance and its relatively low quality and diversity of vegetation do not represent a loss of critical habitat or a significant impact to local or regional ecological resources. WDI has received approval from Van Buren Township for removal of regulated trees within the area of terrestrial habitat and will provide tree replacement as required by Van Buren Township. The removal of the trees will also eliminate perching locations for raptors hunting the adjacent grasslands of Willow Run Airport. The presence of these hunting birds is considered an aviation hazard by airport staff and the elimination of these perching locations is considered beneficial to local aviation safety.

#### ***B4.A.2(n) Aquatic Ecosystem***

WDI established and/or restored approximately 28 acres of new forested and emergent wetland habitats within the ecoregion at a location in Superior Township, Washtenaw County, using plans which were reviewed and approved by the MDNRE in order to account for the 15 acres of wetlands removed as part of WDI's construction of MC VI G.

#### ***B4.A.2(n)(i) Flora***

There are is no aquatic vegetation surrounding the facility.

***B4.A.2(n)(ii) Fauna***

Mammals, reptiles and amphibian species likely to use the wetland were similar to those likely to use the adjoining terrestrial ecosystem. Waterfowl, such as mallard ducks (*Anas platyrhynchos*) and wood ducks (*Axis sponsa*) may loaf or feed in the emergent wetland area.

***B4.A.2(n)(iii) Rare or Endangered Species***

There are no known rare or endangered aquatic species surrounding the facility.

***B4.A.2(n)(iv) Critical Habitat***

The existing vegetation was removed displacing mammals and birds. Some reptiles and amphibians were displaced; however most reptiles and amphibians will likely suffer mortality from construction activities. WDI removed the trees eliminating perching locations for raptors hunting the adjacent grasslands of Willow Run Airport. The presence of these hunting birds is considered an aviation hazard by airport staff and the elimination of these perching locations is considered beneficial to aviation safety.

**B4.B ENVIRONMENTAL IMPACTS OF THE FACILITY**

The impacts of the continued operation of the pug mill can be considered primary and secondary. Primary impacts result directly from the operation, i.e., odor from the lime. Secondary impacts result indirectly from the operation, i.e., the ultimate disposal of sludge solids. Because the existing facility is located in the confines of the 420-acre Wayne Disposal Site #2 Landfill property, there are only a few primary impacts to the immediate environment. On the other hand, the secondary impacts of the MDWTP are the primary impacts of the Wayne Disposal Sanitary landfill. This is because all the sludge solids generated by the pug mill are disposed of in the adjacent landfill.

**B4.C EVALUATION OF ALTERNATE HAZARDOUS WASTE MANAGEMENT TECHNOLOGIES**

There are only three alternatives available:

1. Continue operation at the existing level of activity.
2. Continue operation at a modified level of activity.
3. Close down the existing operation.

The first alternative involves continuation of the operation at the existing activity level. This would include the present system of processing upto 100 tons of sludge per hour or 3800 gallons of liquid waste per hour. Solidification is induced by the addition of lime kiln flue dust at a ratio

of 30% lime to 70% sludge or 65% lime ( or electric arc furnace dust) to 35% liquid wastes. The system presently conforms to State of Michigan and federal rules and regulations on the management (e.g., manifest system) and safe disposal of hazardous wastes.

The second alternative considers modifying the existing operation, namely, the level of activity. In this case, only the volume of material entering the site would increase or decrease. This would have a negligible impact on the lime dust or electric arc furnace dust addition process; however, there is an upper limit to the amount of material that can be handled per day.

The third alternative involves the closure of the facility from accepting any hazardous materials. This alternative would still allow the solidification of non-hazardous sludges and liquids.

#### **Advantages Over Other Alternatives**

There are several advantages the first presents over the other alternatives. By continuing the facility at the existing level of operation, commercial and industrial liquids and sludges generated in the Detroit metropolitan area will be safely processed and disposed. The second alternative could either limit or increase the amount of material for disposal. The present disposal operation is managed for environmental safety and adheres to the MDEQ's rules and regulations. a safe well-managed hazardous waste disposal facility in the vicinity of waste generators will remove the incentive of industries to look for cavalier operations, e.g., midnight haulers.

#### **Disadvantages Over Other Alternatives**

The disadvantages of the first alternative are few. As with any industrial operation located near a heavily used water resource, e.g., the Huron River, there is an intrinsic risk of environmental impairment in the event of an accident. The risk is minimal compared to other alternatives e.g. illegal dumping or interstate transportation of materials. The risk is also extremely small when compared to other risks to the water quality of the Huron River, such as industrial/municipal discharge, spills, and so forth. Transportation of hazardous materials by rail, highway, or waterway also involves risk to the population. The other alternatives may minimize some risk but other risks, in turn, will increase.

## Appendix A SEMCOG Community Report



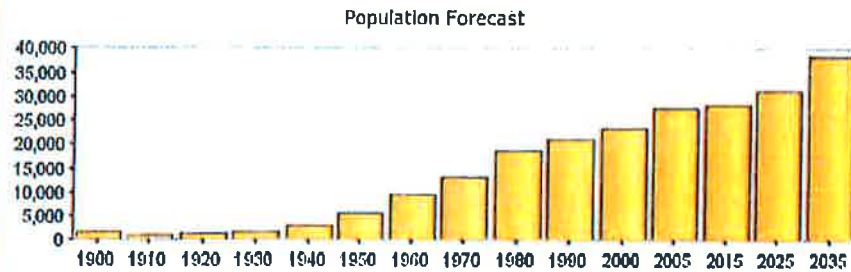
## Charter Township Of Van Buren

46425 Tyler Rd  
 Belleville, MI 48111-5217  
<http://www.vanburen-mi.org/>



Estimated Population: 27,377  
 Area: 36.1 square miles

[People](#) | 
 [Economy & Jobs](#) | 
 [Housing](#) | 
 [Transportation](#) | 
 [Land Use](#) | 
 [Reference Map](#)



Source: U.S. Census Bureau and SEMCOG 2035 Forecast.

⏏ - Move cursor over chart to view population numbers

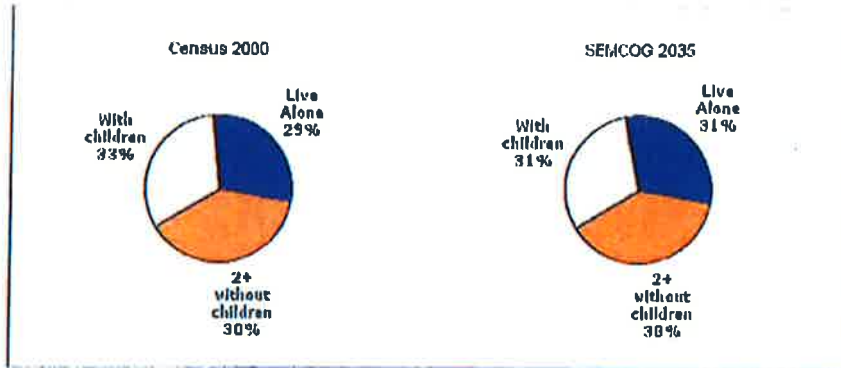
Population and Households	Census 2000	SEMCOG Jul 2010	Change 2000-2010	SEMCOG 2035
Total Population	23,559	27,377	3,818	38,680
Group Quarters Population	82	82	0	92
Household Population	23,477	27,295	3,818	38,588
Housing Units	10,417	13,103	2,686	-
Households (Occupied Housing Units)	9,867	11,836	1,969	16,931
Residential Vacancy Rate	5.3%	9.7%	4.4%	-
Average Household Size	2.38	2.31	-0.07	2.28

Components of Population Change	Annual Average	
	Census 1990-1999	SEMCOG 2000-2008
Natural Increase (Births - Deaths)	80	80
Births	182	186
Deaths	103	106
Net Migration (Movement In - Movement Out)	175	415
Population Change (Natural Increase + Net Migration)	255	496

Source: Michigan Department of Community Health Vital Statistics, U.S. Census Bureau, and SEMCOG.

## Demographics

### Household Types



Household Types	Census 2000		SEMCOG 2035		Change 2000-2035
<b>Total Households</b>	<b>9,867</b>	<b>-</b>	<b>16,931</b>	<b>-</b>	<b>7,064</b>
With seniors 65+	1,153	12%	6,395	38%	5,242
Without seniors	8,714	88%	10,536	62%	1,822
With children	3,219	33%	5,236	31%	2,017
Without children	6,648	67%	11,695	69%	5,047
Two or more Persons	3,780	38%	6,480	38%	2,700
Live Alone	2,868	29%	5,215	31%	2,347
Seniors 65+	355	4%	2,701	16%	2,346
Under 65	2,513	25%	2,514	15%	1

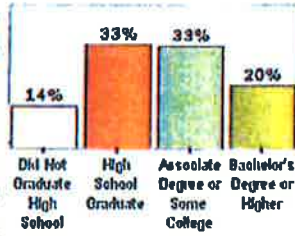
Age Group	Census 2000	SEMCOG 2035	Change 2000-2035	Population by Age Group
65+	1,551	8,329	6,778	
35-64	9,075	12,753	3,678	
18-34	7,300	7,776	476	
5-17	3,949	6,856	2,907	
Under 5	1,684	2,966	1,282	

Senior and Youth Population	Census 2000		SEMCOG 2035		Change 2000-2035
65 and over	1,551	6.6%	8,329	21.5%	6,778
Under 18	5,633	23.9%	9,822	25.4%	4,189
5 to 17	3,949	16.8%	6,856	17.7%	2,907
Under 5	1,684	7.1%	2,966	7.7%	1,282

*Note:* Population by age changes over time because of the aging of people into elder age groups, the movement of people, and the occurrence of births and deaths.

Race and Hispanic Origin	Census 1990		Census 2000		Percentage Point Chg 1990-2000
Non-Hispanic	20,688	98.5%	23,030	97.8%	-0.7%
White	18,771	89.3%	19,135	81.2%	-8.1%
Black	1,595	7.6%	2,820	12.0%	4.4%
Asian or Pacific Islander	202	1.0%	447	1.9%	0.9%
Other	120	0.6%	628	2.7%	2.1%
Hispanic	322	1.5%	529	2.2%	0.7%
<b>Total Population</b>	<b>21,010</b>	<b>100.0%</b>	<b>23,559</b>	<b>100.0%</b>	<b>0.0%</b>

Highest Level of Education*	Census 2000	Percentage Point Chg 1990-2000
Graduate / Professional Degree	7.1%	2.7%
Bachelor's Degree	13.0%	1.2%
Associate Degree	6.5%	-0.2%
Some College, No Degree	26.3%	3.6%
High School Graduate	33.3%	1.3%
Did Not Graduate High School	13.8%	-8.6%



\* Population age 25 and over

### Source Data

[SEMCOG - Detailed Data](#)

[Michigan Department of Community Health - Vital Statistics](#)

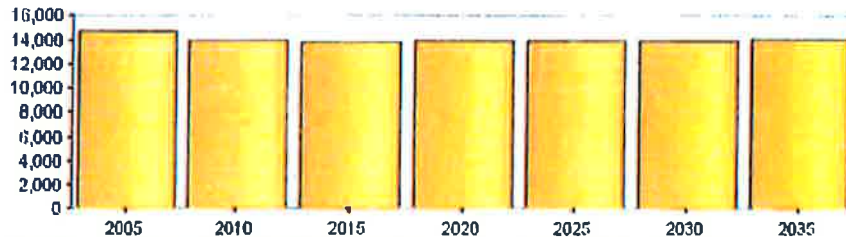
[U.S. Census Bureau - American FactFinder](#)

Note: All SEMCOG employment numbers are by place-of-work and do not include Farming, Construction, or Military jobs. Some differences exist between Current Job Estimates and Forecasted Jobs. [Learn more](#)

Current Job Estimates by Industry	SEMCOG 2002	SEMCOG 2005	Change 2002-2005
Natural Resources & Mining	97	C	C
Manufacturing	2,901	2,432	-469
Wholesale Trade	740	821	81
Retail Trade	1,372	1,373	1
Transportation & Warehousing	562	785	223
Utilities	C	316	C
Information	C	0	C
Financial Activities	C	868	C
Professional, Scientific, & Technical Services	53	2,598	2,545
Management of Companies & Enterprises	0	556	556
Administrative, Support, & Waste Services	552	C	C
Education Services	368	378	10
Health Care & Social Assistance	204	247	43
Leisure & Hospitality	940	797	-143
Other Services	146	101	-45
Public Administration	280	285	5
<b>Total</b>	<b>9,428</b>	<b>12,498</b>	<b>3,070</b>

Note: "C" indicates data blocked due to confidentiality concerns of ES-202 files.

Job Forecast



If any five-year interval employment numbers from 2005-2035 are not shown, the numbers were blocked for confidentiality reasons.

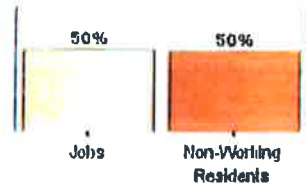
Source: SEMCOG 2035 Forecast.

[i] - Move cursor over chart to view employment numbers

Forecasted Jobs by Industry	SEMCOG 2005	SEMCOG 2035	Change 2005-2035
Natural Resources & Mining	C	C	C
Manufacturing	2,355	1,042	-1,313
Wholesale Trade	939	631	-308
Retail Trade	1,825	1,234	-591
Transportation & Warehousing	917	978	61
Utilities	245	121	-124
Information	C	C	C
Financial Activities	1,421	1,242	-179
Professional, Scientific, & Technical Services	3,005	3,399	394
Management of Companies & Enterprises	505	370	-135
Administrative, Support, & Waste Services	C	C	C
Education Services	419	445	26
Health Care & Social Assistance	352	1,095	743
Leisure & Hospitality	1,009	1,103	94
Other Services	275	263	-12
Public Administration	301	247	-54
<b>Total</b>	<b>14,794</b>	<b>14,039</b>	<b>-755</b>

Note: "C" indicates data blocked due to confidentiality concerns of ES-202 files.

Daytime Population	SEMCOG and Census 2000	Change 1990-2000
Jobs	10,611	4,904
Non-Working Residents	10,517	473
Age 15 and under	5,056	140
Not in labor force	4,864	478
Unemployed	597	-145
Daytime Population	21,128	5,377



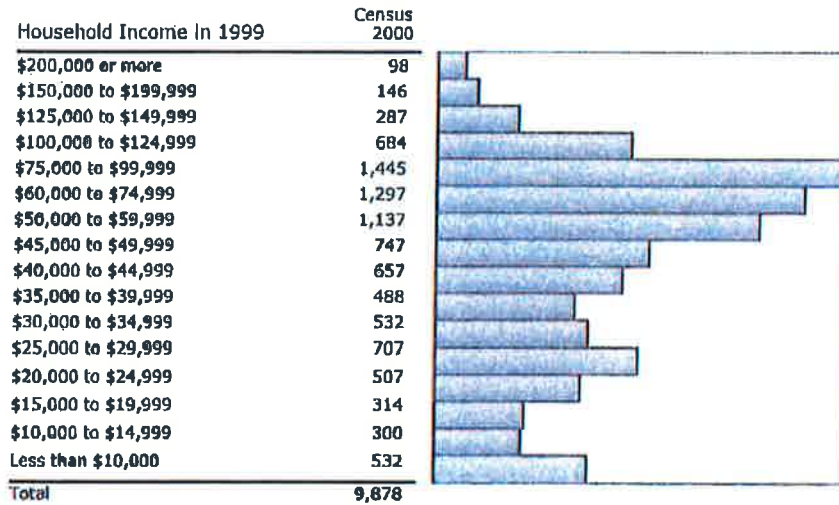
Note: The number of residents attending school outside Van Buren Twp is not available. Likewise, the number of students commuting into Van Buren Twp to attend school is also not known.

Where Workers Commute From *	Census 2000	
	Workers	Percent
1 Van Buren Township	1,536	15.9%
2 Detroit	975	10.1%
3 Ypsilanti Township	592	6.1%
4 Sumpter Township	511	5.3%
5 Westland	471	4.9%
6 Canton Township	422	4.4%
7 Romulus	351	3.6%
8 Taylor	307	3.2%
9 Belleville	300	3.1%
10 Lincoln Park	198	2.0%
- Elsewhere	4,022	41.5%
* Workers, age 16 and over, employed in Van Buren Twp	9,685	100.0%

### Resident Population

Where Residents Work *	Census 2000	
	Workers	Percent
1 Van Buren Township	1,536	12.3%
2 Ann Arbor	1,142	9.2%
3 Romulus	1,092	8.8%
4 Detroit	828	6.6%
5 Dearborn	702	5.6%
6 Ypsilanti Township	687	5.5%
7 Canton Township	622	5.0%
8 Livonia	507	4.1%
9 Belleville	481	3.9%
10 Wayne	474	3.8%
- Elsewhere	4,382	35.2%
* Workers, age 16 and over, residing in Van Buren Twp	12,453	100.0%

Income	Census 2000	Change 1990-2000	Percent Change 1990-2000
Median Household Income (in 1999 dollars)	\$ 50,984	\$ 78	0.2%
Per Capita Income (in 1999 dollars)	\$ 24,820	\$ 3,667	17.3%



Poverty	Census 1990		Census 2000		Percentage Point Chg 1990-2000
Persons in Poverty	1,482	7.1%	1,468	6.2%	-0.8%
Households in Poverty	572	7.3%	589	6.0%	-1.3%

### Source Data

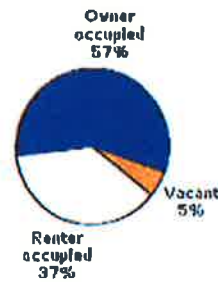
[SEMCQG - Detailed Data](#)

[U.S. Census Bureau - American FactFinder](#)

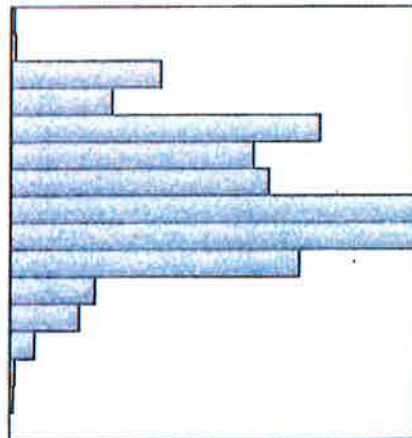
[U.S. Census Bureau - MCD/County Worker Flow Data](#)

Housing Type	Census 1990	Census 2000	Change 1990-2000	New Units Permitted 2000-2010
Single Family Detached	3,961	4,636	675	2,244
Duplex	63	67	4	0
Townhouse / Attached Condo	403	385	-18	555
Multi-Unit Apartment	2,728	3,823	1,095	0
Mobile Home / Manufactured Housing	1,234	1,504	270	0
Other	43	7	-36	-
<b>Total</b>	<b>8,432</b>	<b>10,422</b>	<b>1,990</b>	<b>2,799</b>
<b>Units Demolished</b>				<b>- 55</b>
<b>Net (Total Permitted Units - Units Demolished)</b>				<b>2,744</b>

Housing Tenure	Census 2000	Change 1990-2000
<b>Owner Occupied</b>	<b>5,980</b>	<b>948</b>
Median housing value (In 1999 dollars)	\$ 143,100	\$ 50,151
<b>Renter Occupied</b>	<b>3,887</b>	<b>1,031</b>
Median gross rent (In 1999 dollars)	\$ 693	\$ -54
<b>Vacant</b>	<b>550</b>	<b>6</b>
Seasonal or migrant	94	63
Other vacant units	456	-57
<b>Total Housing Units</b>	<b>10,417</b>	<b>1,985</b>

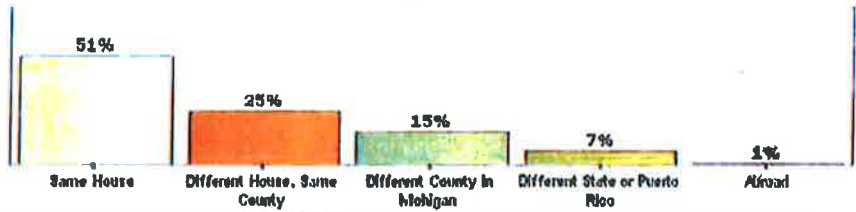


Housing Value In 1999	Census 2000
\$1,000,000 or more	6
\$500,000 to \$999,999	11
\$300,000 to \$499,999	276
\$250,000 to \$299,999	188
\$200,000 to \$249,999	565
\$175,000 to \$199,999	444
\$150,000 to \$174,999	472
\$125,000 to \$149,999	746
\$100,000 to \$124,999	753
\$80,000 to \$99,999	529
\$60,000 to \$79,999	157
\$40,000 to \$59,999	128
\$30,000 to \$39,999	46
\$20,000 to \$29,999	9
\$10,000 to \$19,999	8
Less than \$10,000	0
<b>Specified Owner-Occupied Units</b>	<b>4,338</b>





Residence 5 Years Ago \*



\* This table represents persons, age 5 and over, living in Van Buren Twp in 2000. The table does not represent persons who moved out of Van Buren Twp from 1995 to 2000.

Source Data

[SEMCOG - Detailed Data](#)  
[U.S. Census Bureau - American FactFinder](#)

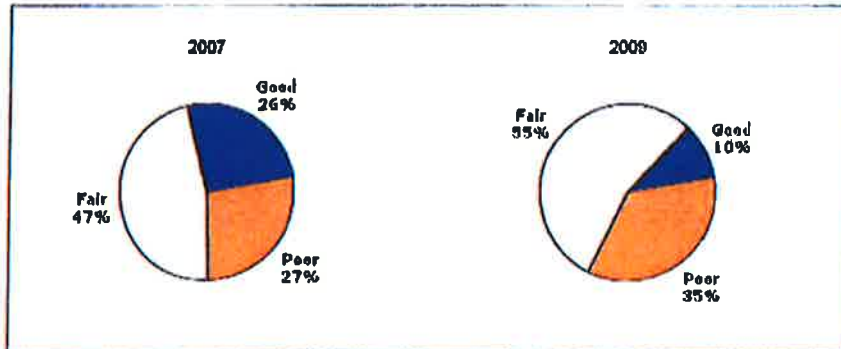


## Roads & Bridges

### Roads

Miles of public road (including boundary roads): 213

#### Pavement Condition (In Lane Miles)



Note: Poor pavements are generally in need of rehabilitation or full reconstruction to return to good condition. Fair pavements are in need of capital preventive maintenance to avoid deteriorating to the poor classification. Good pavements generally receive only routine maintenance, such as street sweeping and snow removal, until they deteriorate to the fair condition.

Bridge Status	2007		2008		2009		Percentage Point Chg 2007-2009
Open	16	100.0%	16	100.0%	16	100.0%	0.0%
Open with restrictions	0	0.0%	0	0.0%	0	0.0%	0.0%
Closed*	0	0.0%	0	0.0%	0	0.0%	0.0%
<b>Total bridges</b>	<b>16</b>	<b>100.0%</b>	<b>16</b>	<b>100.0%</b>	<b>16</b>	<b>100.0%</b>	<b>0.0%</b>

\* Bridges may be closed because of new construction or failed condition.

Deficient Bridges	2007		2008		2009		Percentage Point Chg 2007-2009
	1	6.3%	1	6.3%	1	6.3%	0.0%

Note: A bridge is considered deficient if it is *structurally deficient* (in poor shape and unable to carry the load for which it was designed) or *functionally obsolete* (in good physical condition but unable to support current or future demands, for example, being too narrow to accommodate truck traffic).

## Travel

#### Transportation to Work, 2000 \*



\* Resident workers age 16 and over

Transportation to Work	Census 1990		Census 2000		Percentage Point Chg 1990-2000
Drove Alone	9,435	88.6%	11,259	89.0%	0.4%
Carpooled or Vanpooled	962	9.0%	954	7.5%	-1.5%
Public Transportation	9	0.1%	12	0.1%	0.0%
Walked	57	0.5%	102	0.8%	0.3%
Other Means	43	0.4%	68	0.5%	0.1%
Worked at Home	145	1.4%	258	2.0%	0.7%
<b>Resident workers age 16 and over</b>	<b>10,651</b>	<b>100.0%</b>	<b>12,653</b>	<b>100.0%</b>	<b>0.0%</b>

Mean Travel Time To Work	Census 1990		Census 2000		Change 1990-2000
For residents age 16 and over who worked outside the home	22.1 minutes		24.0 minutes		1.9 minutes

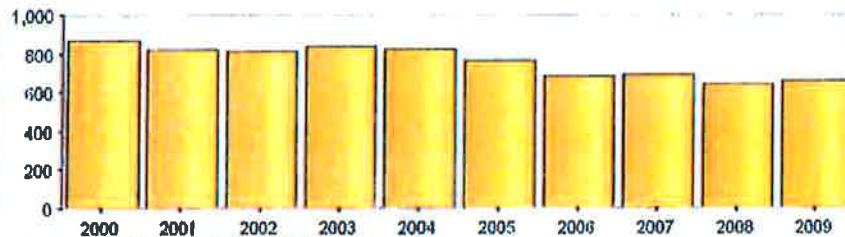
### Transit

Public Transportation:

[Ann Arbor Transportation Authority \(AATA\)](#)  
[September Days Senior Center](#)

### Safety

Crashes, 2000-2009



Source: Michigan Department of State Police, Criminal Justice Information Center, and SEHCOG.

- Move cursor over chart to view crash counts

Crash Severity	2005	2006	2007	2008	2009	Percent of Crashes 2005-2009
Fatal	2	5	7	5	1	0.6%
Incapacitating Injury	19	20	34	24	21	3.4%
Other Injury	172	131	152	142	144	21.5%
Property Damage Only	570	525	499	476	493	74.5%
<b>Total Crashes</b>	<b>763</b>	<b>681</b>	<b>692</b>	<b>647</b>	<b>659</b>	<b>100.0%</b>

Crashes by Involvement	2005	2006	2007	2008	2009	Percent of Crashes 2005-2009
Red-light Running	17	23	16	26	11	2.7%
Lane Departure	163	117	150	149	182	22.1%
Alcohol	56	40	40	34	34	5.9%
Drugs	4	5	6	5	6	0.8%
Deer	30	31	31	26	31	4.3%
Train	0	1	1	0	0	0.1%
Commercial Truck/Bus	73	71	76	62	45	9.5%
School Bus	2	2	3	4	0	0.3%
Emergency Vehicle	7	1	4	4	6	0.6%
Motorcycle	15	7	15	14	5	1.6%
Intersection	235	229	200	192	181	30.1%
Work Zone	11	7	11	13	29	2.1%
Pedestrian	5	2	3	4	4	0.5%
Bicyclist	2	1	2	1	1	0.2%
Older Driver (65 and older)	97	113	96	109	108	8.5%
Young Driver (Under 25)	292	229	270	240	211	20.3%

#### High-Frequency Crash Intersections

Local Rank	County Rank	Region Rank	Intersection	Annual Avg 2005-2009
1	94	265	<a href="#">Belleville Rd @ North Service Rd</a>	22.4
2	102	297	<a href="#">Belleville Rd @ South Service Drive</a>	21.6
3	214	606	<a href="#">Huron River Dr @ Textile Rd</a>	16.2
4	356	984	<a href="#">Belleville Rd @ Ecorse Rd</a>	12.2
5	381	1,035	<a href="#">Ecorse Rd @ Haggerty Rd</a>	11.8
6	416	1,126	<a href="#">Belleville Rd @ Ecorse Rd</a>	11.2
7	435	1,192	<a href="#">Belleville Rd @ Tyler Rd</a>	10.8
8	495	1,350	<a href="#">Haggerty Rd @ North Service Rd</a>	10.0
9	765	1,970	<a href="#">Huron River Dr @ Old Haggerty Rd</a>	7.8
10	827	2,102	<a href="#">Haggerty Rd @ South Metro Pkwy</a>	7.4

Note: Intersections are ranked by the number of reported crashes, which does not take into account traffic volume. Crashes reported occurred within 150 feet of the intersection.

### High-Frequency Crash Segments

Local Rank	County Rank	Region Rank	Segment	From Road - To Road	Annual Avg 2005-2009
1	17	82	<a href="#">Belleville Rd</a>	North Service Rd - Tyler Rd	55.8
2	72	268	<a href="#">Rawsonville Rd</a>	Bemis Rd E - Textile Rd	39.0
3	239	876	<a href="#">Sumner Rd</a>	Bemis Rd - Main St	23.2
4	350	1,242	<a href="#">Belleville Rd</a>	Tyler Rd - Ecorse Rd	19.4
5	384	1,344	<a href="#">E I 94</a>	Ramp - Rawsonville/E I 94 - Ramp - E I 94/Belleville	18.6
6	457	1,550	<a href="#">North Service Rd</a>	Belleville Rd - Haggerty Rd	17.0
7	475	1,615	<a href="#">W I 94</a>	Ramp - W I 94/Rawsonville - Ramp - S Belleville/W I 94	16.6
8	509	1,724	<a href="#">Rawsonville Rd</a>	Textile Rd - Grove St	16.0
8	509	1,724	<a href="#">Belleville Rd</a>	Quirk Rd - I 94 Service Drive S	16.0
10	725	2,347	<a href="#">Ecorse Rd</a>	Ramp - Ecorse/N I 275 - Hannan Rd	13.2

Note: Segments are ranked by the number of reported crashes, which does not take into account traffic volume.

### Other Transportation Facilities

#### System Airports:

[Willow Run Airport](#)

### Corridor Studies

[Ann Arbor-Detroit Regional Rail Project](#)

### Source Data

[SEMCOG - Detailed Data](#)

[U.S. Census Bureau - American FactFinder](#)

Land Use / Land Cover (In acres)	SEMCOG 2000		Change 1990-2000	
Residential	4,368	18.9%	402	10.1%
Single-Family	4,066	17.6%	336	9.0%
Multiple-Family	302	1.3%	66	28.0%
Non-Residential	5,081	22.0%	659	14.9%
Commercial and Office	275	1.2%	58	26.6%
Industrial	747	3.2%	292	64.3%
Institutional	192	0.8%	-41	-17.7%
Transportation, Communication, and Utility	3,205	13.9%	236	7.9%
Cultural, Outdoor Recreation, and Cemetery	662	2.9%	114	20.9%
Under Development	777	3.4%	750	2,750.9%
Active Agriculture	4,473	19.4%	-1,850	-29.3%
Grassland and Shrub	2,466	10.7%	-135	-5.2%
Woodland and Wetland	4,590	19.9%	166	3.8%
Extractive and Barren	0	0.0%	0	-
Water	1,325	5.7%	9	0.7%
<b>Total Acres</b>	<b>23,080</b>	<b>100.0%</b>	<b>0</b>	<b>0.0%</b>

Source Data

[SEMCOG - Detailed Data](#)

### Transportation Data

2000

#### Land Use / Land Cover

-  Single-family residential
-  Residential area with 25% or more vacant land
-  Multiple-family residential
-  Under development
-  Commercial and office
-  Institutional
-  Industrial
-  Transportation, communication, and utility
-  Vacant land in nonresidential areas
-  Cultural, outdoor recreation, and cemetery
-  Active agriculture
-  Grassland and shrub
-  Woodland and wetland
-  Extractive and barren
-  Water

[More information](#)

