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# City of Portage's Environment Overview: Demographics, Water System, Sewer, Solid Waste

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# City of Portage's Environment Overview

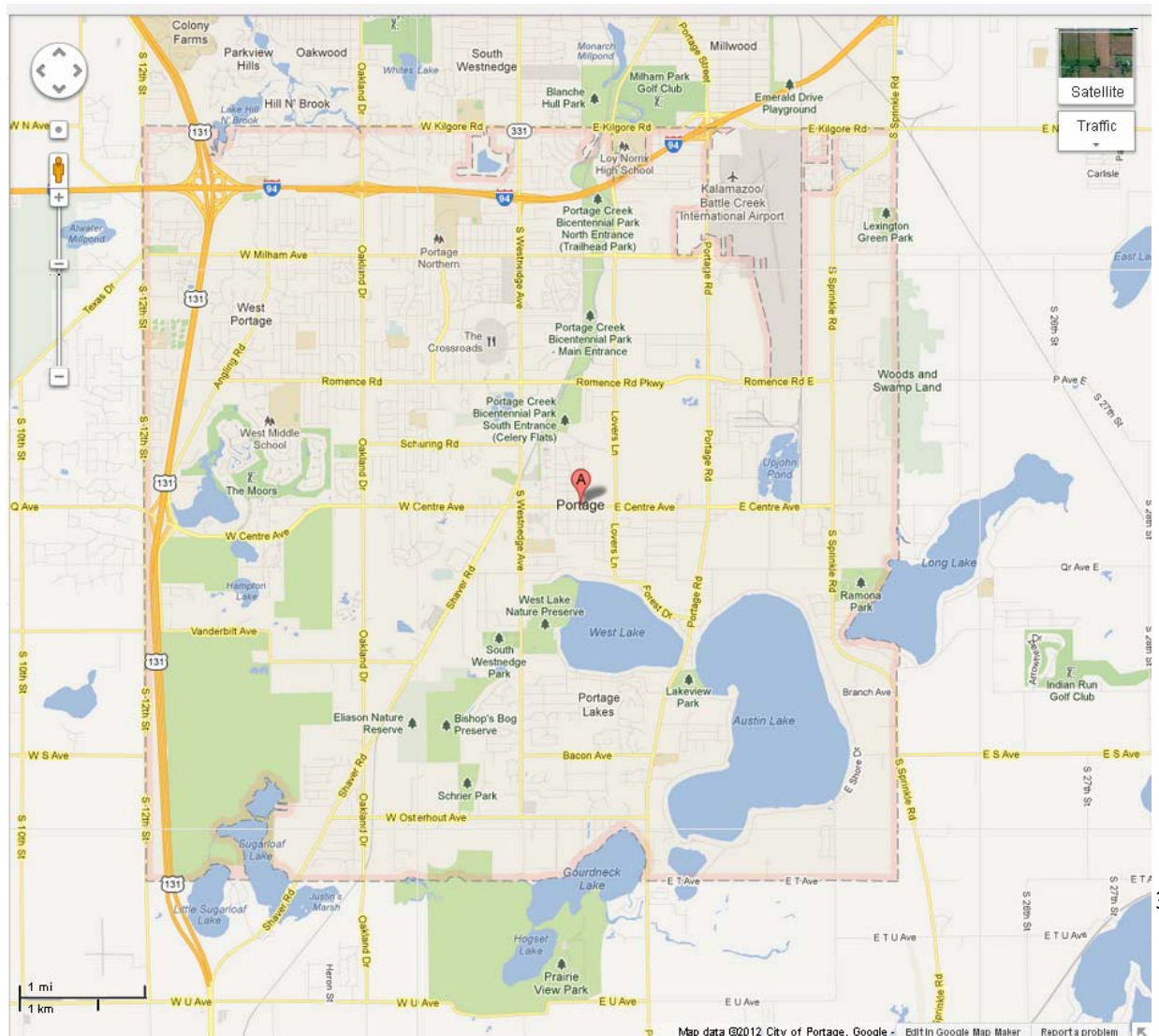
## Introduction

The purpose of this report is to summarize the current status of the City of Portage in relationship with the environment. This is an important exercise for the Environmental Board, which as advisor to the City Council in such matters, needs to be informed of the city's conditions. This information may also be important to the general public, as a learning exercise to understand what measures are taken by the city to harmoniously interact in the environment, how the city benefits from it and what the city does to protect it. Other audiences may include city residents or anyone interested in learning about different programs and/or projects the city engages in.

## Information Sources

The primary source for this report was an interview with Chris Barnes, Director of Transportation and Utilities for the City of Portage. Other sources include online searches and public data sources (Internet, library, etc)

## City of Portage Map



## Demographics/Statistics

The following table shows some general and specific statistics regarding Portage and the environment:

Attribute	Data	Source
Population in Portage	46,292	Wikipedia, from 2010 Census. Number seems reasonable. Chris Barnes estimates about 50,000. (In 1997, population was 43-45,000) 2000 Census indicates 44,897 residents
% Population <18	26.4%	Wikipedia, from 2000 Census.
% Population >65	11.8%	Wikipedia, from 2000 Census.
Number of Families	12,134	Wikipedia, from 2000 Census.
Number of Housing Units	18,880	Wikipedia, from 2000 Census.
Number of Households	18,138	Wikipedia, from 2000 Census.
Households that participate in Recycling program	~14,000	A contract quote used 14,875 households.
Number of Utility customers in Portage (that have connection to water and/or sewer)	13,500	An estimate based on interview with Chris Barnes (which correlates to the fact that only about 90% of units are connected to the city)
Avg. solid waste production per person/day in US (lb)	4.7	U.S. Space and Rocket Center Museum, Huntsville, AL (Annenberg Learner Foundation publishes 4.6lb/day on their website <a href="http://www.learner.org">www.learner.org</a> )
Portage Waste production per day (lb)	217,572	Calculation. Using the national average estimate above. (Note: Portage may be above/below the national average)
Portage Waste production per week (lb)	1,523,007	Calculation. Using the national average estimate above. (Note: Portage may be above/below the national average)
Portage Waste production per month (lb)	6,527,172	Calculation. Using the national average estimate above. (Note: Portage may be above/below the national average)
Portage Waste production per year (lb)	79,413,926	Calculation. Using the national average estimate above. (Note: Portage may be above/below the national average)

The statistical decomposition of apartment complexes is harder to estimate. Data from the city indicates the following:

# of Apartment Locations	41
# of Apartment Units	4,653
# Apartment locations >12 units	30
# of Condo locations	13
# Condo Units	841

## Finances

The city pays for some services via the passage of a millage that includes municipal recycling and leaf/brush collection. This millage was capped at 0.90 mills, and currently .5 mills are levied for brush pick up and .3349 mills for recycling. In Portage, 1 mill is about \$1 Million.

## Potable/City Water

The city of Portage provides drinking water to its citizens via 22 water wells driven to a typical depth of 150 feet. Since 2001, approximately 2 Billion gallons on average are consumed per year by Portage residents, and monthly consumption varies on time of year and precipitation. Monthly water pumpage is shown on the attached chart (Appendix I). The ground water table in Portage fluctuates seasonally based on soil types and annual rainfall. For example, high groundwater table levels in 2008/09 caused a number of homes in Portage to experience water in basement areas.

## Sewer

The reader can refer to the Demographics section for the estimated number of sewer customers in Portage. Different types of sewers exist: Combined Sewers and/or Single Type Sewers (sanitary, storm). A combined sewer is where both sanitary and storm water use the same infrastructure. Portage has only Single type sewers, also known as separated systems, where each waste type has a dedicated infrastructure.

For the **Sanitary Sewer**, Kalamazoo treats all the water for the area which includes several townships and cities: Portage, Parchment, Mattawan, Texas Township, etc. Kalamazoo's Sewer Plant is located by Parchment next to the Kalamazoo River, benefiting from the grade. Portage is designed with a three trunk system to feed to Kalamazoo, which are identified as:

- Davis Creek Trunk
- Portage Creek Trunk
- West Fork Trunk

Each trunk is located naturally along elevations to allow gravity advantage for moving the water, thus the proximity to rivers, streams, etc. Pfizer does not connect to either the Portage storm water or sanitary sewer system; instead they pump their wastewater into Kalamazoo directly. Due to the nature of their business, they are required to have a Spill Protection and Containment program (SPC), and therefore monitor and test their wastewater and storm water discharges themselves.

The Portage **Storm Sewer** has been developed as the city grew, requiring new construction of systems as growth occurred. In most occasions, when major road work is performed, a storm water collection system is built for the road drainage. The Storm Sewer is an independent structure and has no connection to other systems, such as the sanitary network. Basins/ponds are a main feature of the system, which treat the water by retaining or separating sediments before going to the next water body.

The City of Kalamazoo on the other hand, does have some storm water discharge that goes directly into the Kalamazoo River without prior treatment, which can be concerning.

The Portage Sanitary Sewer system was primarily built between 1976 and 1981. At that time there was a Groundwater Commission, which prior to their incorporation into the environmental board in 1993, provided input for storm water, sanitary sewer and for septic systems. The environmental board was established in 1993 primarily to assist in protecting the water quality of the city.

Sanitary Sewer requirements were established, most notably when a new construction was within 200ft from the city Sanitary Sewer, it must connect to it. To date about 90% of utility customers are connected to the public sewer, but there are still 10% that are not required to be connected if further than 250 ft from the sewer. Pfizer can discharge storm water from their pond into either Portage Creek or Austin Lake as part of their State of Michigan discharge permit. The Pfizer discharge quantities to water bodies have significantly declined from 15M gallons per day to approximately 4M gallons per day.

Assessments are typically applied to areas where construction related to a city project would occur, which would include connection to the sewer amongst other projects (roads, sidewalks). Assessments are no longer a funding source for street projects due to the city-wide millage passed in 2006, but special assessments are still used for utility projects. The sources of capital for street projects are a street millage, which allows only 1 mill max for road improvement projects, as well as federal funds.

## **Lakes**

Portage enjoys several lakes within the city confines. Most notably are Austin Lake and West Lake, due to their size. The city borders other lakes where strong resident involvement is present, such as Long Lake and Gourneck. An environmental issue that lake communities battle is the organic sediment on the bottom of the lakes. The sediment, of a muck-like consistency is comprised of leaves and other organic materials. Lake residents would like to remove this sediment, but solutions to this are varied and funding is unavailable. At Austin Lake, one proposal was made to aerate the lake bottom and introduce bacteria that would consume the sediment. Another proposal was draining the lake (it is a shallow water body only 4-6ft deep) and mechanically or hydraulically remove the sediment. The latter methods are particularly very costly.

## **Consolidated Drain**

A unique program begun by the City of Portage in 2001 was constructing the "Consolidated Drain", which was executed mainly in response to the flow of many substances directly into Portage Creek. More notably, the vicinity of the Shopping Mall to the creek contributed to contamination. The consolidated drain is a remarkable system, which was possible with the help of a \$1M grant obtained by the city. The creek was taken offline to build wetlands that would act as filters to the water returning to the creek, slowing its flow and allowing sediments to settle on the bottom of the wetlands and preventing them from reaching the creek stream. The Consolidated Drain wetlands contain aquatic

vegetation to capture some of the nutrients. Since development of the drain, approximately 60,000 lbs per year of phosphorus are prevented from reaching the Portage Creek by this system.

### **Solid waste, Leaves and Brush Collection**

The City of Portage allows its citizens to contract waste removal services with private companies of their choice. The city only regulates that pickup of waste occurs on the same day for all companies.

**Leaves** are collected by the city itself by renting packer trucks, loaders and sweepers. The cost of renting is included in the brush and recycling millage. Cost of renting the equipment is approx. \$114,000 per year and 15,000 yd<sup>3</sup> of leaves are collected each fall and 13,600 bags of leaves are collected in the spring. Leaves are taken to a city property near Oakland Drive, where they are composted for renewed soil.

**Brush collection** is handled via a different contractor, B&B Yardscape for approximately \$87,780 per year. B&B Yardscape delivers the chipped brush to the compost site and Renewed Earth, Inc. recycles the chips into a mulch product.

### **Recycling**

The city’s Streets Dept. is in charge of the recycling program. The city currently contracts with one company to conduct recycling on households, condominiums and apartments only (no businesses or churches). The current contract with Republic Waste Services Company, with an estimated \$508,000 annual contract, was just extended in 2012 for 3 more years.

Here are some recycling statistics regarding Apartments:

Coverage for Recycling (either bin, cart or container)	
# Apartment locations covered	27 (65.9%)
# Apt. Units covered	2297 (49.4%)
Coverage of Condo locations and units	100%
Coverage of households	100% (estimated)

In August 2010 through April 2011, the City of Portage conducted an evaluation on changing the recycling program to one so called “Single stream”, where items would all be thrown in a large 95-gallon-like container and would be collected every 2 weeks instead of weekly (the current program provides free of charge orange bins where all recyclables are collected). The city concluded not to adopt the new program, primarily because of the requirement of the bidder (Republic Waste Services) to have

a 5yr minimum contract length, which they claimed was required to capitalize and recover the cost of the new recycling containers. The proposal contract was done estimating 14,000 households, at a cost of \$540,000. The bidder's proposal indicated that more volume was expected to be collected by the bi-weekly and single-stream fashion program than the current one, which would have resulted in higher collection/recycling rates.

The top complaints about the recycling program are as follows:

- 1) They did not pick up recycling at all
- 2) They did not pick up hazardous material (like paints, etc)



## Appendix I: Water pumpage in City of Portage

