

## MISSION STATEMENT

Our mission is to provide professional engineering and environmental services in a respectful and efficient manner, which safeguards the Township's public infrastructure and natural resources for the well-being of our residents.

# 2017 Annual Report

## Engineering & Environmental Services Department



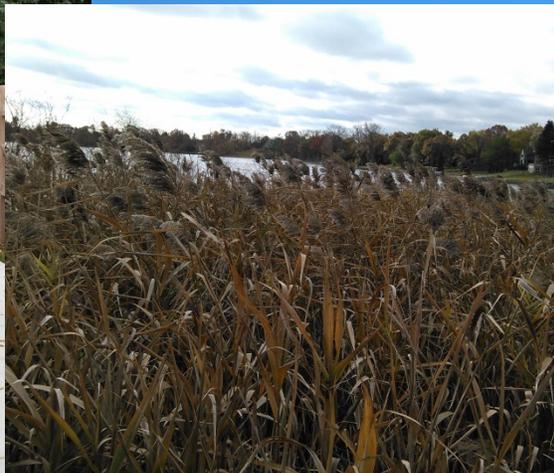
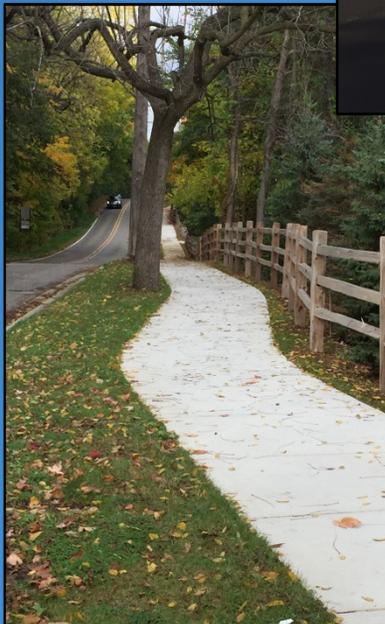
Olivia Olsztyn-Budry  
Director

Charles Markus  
Project Coordinator

Angela Hysinger  
Staff Engineer

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Project Coordinator

Cory Borton  
Asset Management Coord.



# Support & Technical Assistance

The Engineering and Environmental Services Department (EESD) supports other departments in the review of projects that seek permits from the Township. In cooperation with the Planning, Building & Ordinance Departments and the Department of Public Works, the EESD reviews applications for building permits, natural features permits, fill permits, planning permits, and tree permits. Also, the EESD assists the Clerk's Office in reviewing applications for right-of-way disturbance permits and wetland permits.

The EESD staff provides technical support to the DPW-Water Division throughout several emergency water and sewer repairs. In addition, EESD staff provides assistance to residents regarding connection to Township water and sewer services, drainage concerns impacting their property, and natural resource development regulations. EESD staff also provides project management and technical direction during the replacement and upgrading of public utilities. The EESD works collaboratively with other jurisdictions, including the Michigan Department of Transportation (MDOT), Road Commission for Oakland County (RCOC), Great Lakes Water Authority (GLWA), Southeastern Oakland County Water Authority (SOCWA), and Oakland County Water Resources Commissioner (OCWRC).

EESD also works collaboratively with other organizations on a regional basis. These organizations include the Alliance of Rouge Communities (ARC) and the Oakland County Cooperative Invasive Species Management Area (OC CISMA).

Below is a numerical summary of projects and work that the EESD either managed or provided assistance in 2017:

- ❖ 271 building, tree, and fill permit reviews
- ❖ 1.07 miles of new safety path
- ❖ 6,666 feet (1.26 miles) of water main replaced by the Township
- ❖ 6,560 feet (1.24 miles) of new public water main installed by private developments
- ❖ 3,809 feet of new public sanitary sewer installed
- ❖ 217 right of way permit reviews
- ❖ 6 engineering plan approvals for private development projects

# Engineering Projects and Programs

## Bloomfield Village Water System Enhancement Phase 4A

As part of the Township's continuing capital improvement program, existing water mains in Bloomfield Village, which range from 50 to 90 years old, are being replaced or rehabilitated. The scope of this project includes upsizing 6-inch diameter water mains, replacing existing 8-inch to 12-inch diameter water mains, replacing and adding hydrants, and replacing valves. Due to the large size of the water system located in the Village, this project has been spread over several years into phases.

Phase 4A of the project began in 2017 with final restoration to be completed in the spring of 2018. This phase consisted of replacing 2.56 miles (13,528 feet) of water main using the pipe-bursting method on several different streets. The streets where water main was replaced included N. Glengarry Road, Glengarry Circle, Sandringham Way, Amberly Road, Endsleigh Drive, Covington Place, Hensworth Court, Courtleigh Terrace, Aberdovey Place, and Twin Maples Lane.

Phase 1 of the project, in 2013 and 2014, installed 5.2 miles (27,500 feet) of new water main pipe. In 2015, 3.4 miles (18,015 feet) of water main pipe was replaced as part of Phase 2. Phase 3 was completed in 2016 and consisted of replacing 2.73 miles (14,431 feet) of water main replaced. In total, 8.71 miles (45,974 feet) of water main have been replaced within Bloomfield Village since 2013.

## Westchester Village Water Main Replacement Phase 2

As part of the Township's continuing capital improvement program, existing water mains in Westchester Village, which range from 60 to 65 years old, are being replaced or rehabilitated. The scope of this project includes upsizing 6-inch diameter water mains, replacing existing 8-inch to 12-inch diameter water mains, replacing and adding hydrants, and replacing valves. Due to the large size of the water system located in Westchester Village, this project has been spread over several years into phases.

Phase 1 of the project was completed in 2016. This phase consisted of replacing the water main on Farmingdale Dr., Heathfield Rd, and portions of Westbourne Drive, Middlebury Ln., and Berkshire Dr. The majority of the water main was replaced via the pipe-bursting method. In total 1.35 miles (7,115 feet) of pipe had been replaced in this phase.

Phase 2 of the project began in 2017 with final restoration to be completed in the spring of 2018. This project consisted of replacing water main on W. Breckenridge Ln, Windham Ln., Dalebrook Ln., Summervale Ln, Westbourne Ct., Roanoake Dr., and portions of Breckenridge Ln, Bradford Dr., and Berkshire Dr. 1.26 miles (6,666 feet) of water main pipe was replaced this year, using the pipe-bursting method, during Phase I. It is projected that 4,400 feet of water main will be replaced in 2018 as part of Phase 3.

## Sanitary Sewer Extensions

### Larkwood Court Sanitary Sewer Extension

In August 2016 the Township received a petition to extend public sanitary sewer to 3570 and 3590 Larkwood Court. Superior Excavation was awarded the contract to construct the new sewer. The Township Board approved the resolution to proceed with Special Assessment District #416 on March 13, 2015. The final project was completed during the Summer of 2017 and consisted of 310 feet of new public sanitary sewer.



### Franklin Road Sanitary Sewer Extension

In 2015 the property owners for 3595 Franklin Road requested approval to extend sanitary sewer to their property in order to service a proposed future house. The property owner funded public sanitary sewer was completed in late 2016 and services this property as well as the neighboring 3459 Franklin Road property. The neighboring property will help fund a portion of the project as part of a payback agreement when they connect to the sewer in the future. The final project provided 380 feet of new public sanitary sewer.

## Chapter 20 Drains

In the spring of 2017 work began on two Chapter 20 drain projects. Bloomfield Township petitioned the Oakland County Water Resources Commissioner for an extension to the Hamlin Drain and for the creation of the Dan Devine Drain.

### Hamlin Drain Extension

The Hamlin Drain Extension connects to the existing Hamlin Drain on Traymore Drive and will alleviate flooding along East Berkshire Road, located in the East Bloomfield Highland Subdivision.

The project included open-cut construction of approximately 1,500 feet of reinforced concrete pipe ranging in diameter from 12 to 21 inches including drainage structures along East Berkshire Road and Traymore Drive. Work began in the spring and was completed and restoration installed by the end of the summer.

### Dan Devine Drain

The Dan Devine Drain incorporates an existing drain and another water course flowing through the Eastways Farm, Foxhall, and North Bloomfield Hills Subdivisions. The project is designed to reduce flooding on adjacent properties and includes clean-out of the existing drainage course, stream-bank stabilization, clearing, and repair of selected reinforced concrete pipes at Severn Lane and Downderry Court. Site restoration and dredging of the detention pond at the drain's terminus at the Township's border with Bloomfield Hills was also included in the project. The project began in the spring of 2017 with restoration expected to be completed in the spring/summer of 2018.

## Private Developments

As part of private developments, new public water main and sanitary sewer may be constructed. The EESD and the Township's consultant manage the installation of new public utilities through the review of construction plans for conformance with the Township's standards, permitting of the utilities through the State of Michigan and the appropriate utility public agencies, and the observation and inspection of the installation of the utility. The following developments installed public water main and sanitary sewer in 2017:

- ❖ Academy of the Sacred Heart: 215 of relocated/new water main.
- ❖ Baron Estates: 2,376 feet of new water main, 1,851 feet of new sanitary sewer.
- ❖ Erhard BMW: 1,515 of new water main.
- ❖ First & Main: 744 feet of new water main, 39 feet of new sanitary sewer.
- ❖ Hogan's Plaza: 196 feet of new water main
- ❖ Legacy Hills: 1,202 of water main, 1,229 of new sanitary sewer.
- ❖ Openlogix: 212 feet of new water main.

## Road Special Assessment Districts

Public roads in residential subdivisions are owned by the Road Commission for Oakland County (RCOC). Bloomfield Township residents can request the Township to create a Special Assessment District, under Public Act 188 of 1954, for paving subdivision roads. Through an

agreement with the RCOC, the Township can create a Special Assessment District (SAD) to pay for the road improvements.

Several subdivisions are currently within one of the phases for creating an SAD. They are the circulations of the Expression of Interest form, the design of the project, the circulation of the final petition for among the residents, and the public hearings and Township Board approval. No roads were constructed through the SAD process in 2017. However, one subdivision is currently scheduled for construction in 2018.



SAD road before construction



SAD road after construction

## Safety Path Program

In 2017, approximately a mile of new safety plan was constructed as part of the Safety Path Master Plan. Future safety path routes are considered based upon the anticipated usage by residents, the ability to construct within the existing public right-of-way, and to preserve the surrounding natural features. The areas of new safety path that was constructed in 2017 included:

- ❖ Long Lake Road - between West Bloomcrest Drive and Adams Road
- ❖ Woodward Avenue - between Manor Road and Strathmore Street



## Sanitary Sewer Facility Plan

In 1975, Bloomfield Township agreed to participate in a study of the Evergreen Farmington Sewage Disposal System (EFSDS) to abate pollution and the relief of the EFSDS. Subsequently, the plan, known as the 1978 Sanitary Sewer Facility Plan, was developed and identified how all properties in the Township can be served by gravity sanitary sewer. This plan had been used as

the guiding document for the planning and extension of sanitary sewers ever since. Due to the development between 1978 and present, some of the routes proposed in the 1978 Facility Plan are not feasible, require easements through private properties, traverse through restricted areas such as wetlands and shorelines, or have to be revised due to development in the Township.

The Sanitary Sewer Facility Plan update was concluded in 2017. The Township still has approximately 3,000 unsewered parcels. The Facilities Plan addresses options for providing sanitary sewer service to the remaining parcels. While gravity sewers are the most desirable, in some instances other alternatives are considered, such as pressure sewers to eliminate the need for rear yard sewers with difficult access for maintenance. This new plan will be used as the guiding document for the planning and extension of sanitary sewers moving forward.

## Hazard Mitigation Plan

In order to be eligible for pre- or post-disaster mitigation funding, the Federal Disaster Mitigation Act of 2000 requires local governments to prepare a Hazard Mitigation Plan (HMP), which identifies strategies to minimize the impact of these hazards. The Township's HMP focuses on the risks posed to residential properties and public infrastructure by a myriad of natural and unnatural hazards. Examples of hazards can include severe thunderstorms, wildfire, flooding, infrastructure failures, and civil disorder. This plan has to be updated on a regular basis.



In February 2016, Bloomfield Township was awarded grant funds from the Michigan State Police (MSP) to update the current HMP. The current HMP was reviewed and updated with the participation of several Township departments, and was approved by the Board of Trustees on August 14, 2017.

## Water Asset Management Plan

In 2013, the Michigan Department of Environmental Quality (MDEQ), promulgated new regulations under the Michigan Safe Drinking Water Act (SDWA) Act 399 that states a Water Asset Management Plan (WAMP) shall be implemented for all water systems serving more than 1,000 customers. Bloomfield Township falls within this category. Michigan's SDWA defines a WAMP as, "a plan that identifies the desired level of service at the lowest life cycle cost for rehabilitating, repairing, or replacing the assets associated with the waterworks system."

In 2017, the Water Asset Management Plan for the Bloomfield Township's drinking water system was completed and submitted to MDEQ. As part of the process the Township's Geographic Information System (GIS) data for the water system was updated. The final WAMP contained an inventory of the water system assets (i.e. pipe, hydrants, valves, pump station, etc.), it outlined the critical assets, a Level of Service was adopted, a Capital Improvement Plan was created identifying the water system needs for the next 20 years, and the revenue structure was outlined showing how 20 year water system needs will be financed.

Since the water system is always changing from replacements projects, extensions, and maintenance and repairs, the WAMP will be reviewed annually by staff in order to keep it current.

### **WATER SYSTEM LEVEL OF SERVICE GOALS**

Bloomfield Township strives to provide its water customers with a high quality product at the lowest cost possible to the users.

Bloomfield Township works to ensure that all compliance and water quality issues are met. This includes meeting all State and Federal regulations for drinking water quality, assuring that there is adequately trained staff to operate the system. The annual drinking water quality report outlines the results of the water system testing.

Bloomfield Township has developed a comprehensive emergency response plan in order to assure that customer service disruptions on the water system are minimized. DPW and Township staff will continue to work with residents when water service interruptions are necessary. Bloomfield Township will continue to update and improve notification processes to residents as communication techniques evolve. The Township strives to minimize interruptions in service to the maximum extent possible.

The Township will attempt to keep rates stable for customers. This includes budgeting for capital improvements to make sure that the system continues to operate in a cost effective manner, as well as doing routine operation and maintenance to keep the system in good working order. The Township also replaces meters as needed to assure accurate readings to further reduce non-revenue water sources. The Township will review non-revenue water loss on a regular basis to ensure that non-revenue water loss is minimized and that the system is operating efficiently.

The Township will also continue to review means and funding opportunities for providing public water service to residents that are not currently served with public water and that will also improve the water system redundancy and water quality.

# Environmental Projects and Programs

## Invasive Species Control

Bloomfield Township became a participant in the Oakland County Cooperative Invasive Species Management Area (CISMA) beginning in 2015. This non-profit organization consists of 19 communities residing in Oakland County whose goal has become to control the spread of invasive species through a collaborative effort. The primary role CISMA plays for Bloomfield Township is making available educational and outreach programs, demonstration sites, and collaboration and funding from state and federal grant programs.

Oakland County CISMA was the recipient of a generous funding opportunity from the Road Commission for Oakland County (RCOC) in 2015. The RCOC provided \$75,000 to tackle invasive species such as phragmites, swallow wort, and Japanese knotweed within the county's road right of ways. These invasive species rapidly choke out native vegetation and nutrients which impacts the ecological health of the wetlands while impeding proper drainage and sight distance along many roadways.



The purpose of the Oakland County CISMA is to continue to help communities like Bloomfield Township fund a maintenance program for the eradication of invasive species on both public and private properties. The Oakland County CISMA meets once a month to discuss innovative strategies for controlling invasive plants across property lines through collaboration with public and private partnerships and to search out grant and funding opportunities to manage invasive species.

## Tree Preservation and Protection

EESD participates in programs and grants for increasing the tree canopy in the area. In 2017, the Alliance of Rouge Communities (ARC) was awarded a \$100,000 Restoring Tree Canopy grant from the US Forestry Service. This grant was established to recover the tree population in the rouge communities after losing many trees due to the outbreak of the emerald ash borer for the

planting of trees to mitigate Emerald Ash Borer impacts. As part of the grant Bloomfield Township will be receiving 85 trees. The trees are scheduled to be planted throughout the Township in the spring of 2016. The deadline for planting the trees is June 30, 2016. The ARC received a similar grant from the US Forestry Service in 2015 which resulted in the Bloomfield Township receiving 144 trees that were planted in spring of 2016.

## Fertilizer Ordinance

Through Bloomfield Township's Registered Fertilizer Applicator Program, commercial fertilizer firms agree to follow the requirements of the Fertilizer Ordinance for fertilization done in the Township. The registrars are issued a permit for a two year period. The first year of the next two year phase for this permit process begins in spring of 2018. A list of the current fertilizer applicators registered with the Township can be found on the Township's website under the Environmental Services tab and then click on the "Fertilizer" link.

## National Pollution Discharge Elimination System (NPDES) Permit Management

Bloomfield Township continues to implement the requirements under Storm Water Pollution Prevention Plan (SWPPP) which is required as part of the 2003 National Pollutant Discharge Elimination System (NPDES) general permit for our Municipal Separate Storm Sewer System (MS4) Permit. The MS4 Permit outlines the activities that the Township must conduct regarding Public Education, Public Participation, storm sewer sampling, field work, and facilities in and around Township facilities to ensure to protect our watershed from sources of pollution.



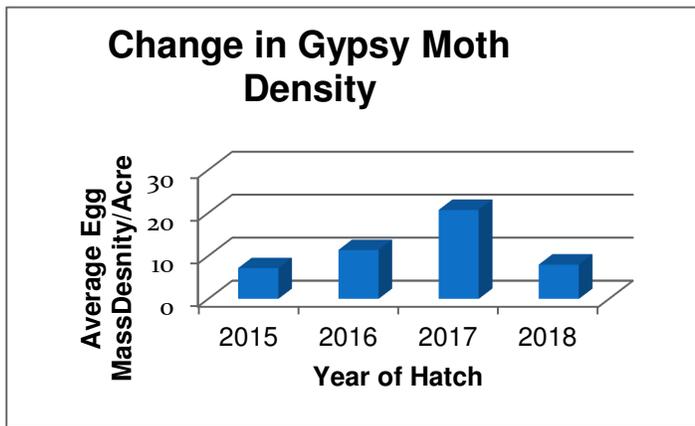
In 2016 the EESD most recently submitted the application for the next permit cycle. The application, prepared in collaboration with the Alliance of Rouge Communities (ARC), included new Standard Operating Procedures Public Education Plan, Public Participation Plan, Illicit Discharge Elimination Plan, and the Total Maximum Daily Loads Plan. The application is currently being reviewed by MDEQ.

## Gypsy Moth Management Program

Since 1993 Bloomfield Township, together with the National Gypsy Moth Management Group, has implemented an integrated pest management approach to reduce and contain the gypsy moth problem. Components of the program include: public education, intensive biological monitoring, and treatment plus evaluation.

The National Gypsy Moth Management Group personnel collected data from biological surveys at permanently established survey locations to determine gypsy moth population, density and health, susceptibility and vulnerability of trees and infestation trends. In 2017, fungus inoculations were applied to trees in 29 locations throughout the Township. In addition, upon the recommendation of National Gypsy Moth Management select trees in one location received additional ground-based spraying treatment from an outside contractor.

The results of the data collected in 2017 revealed the average egg mass density for the managed areas decreased 61.4% from 20.7 EMA to 8.0 EMA, which will hatch in spring of 2018. The number of focal areas of infestation also decreased from 56 to 43. National Gypsy Moth Management Group is currently in an 8 year contract that will expire in 2024.



Gypsy moth population trend in Bloomfield Township over a 5 year period.

## West Nile Virus Management Program

The Township's West Nile Virus (WNV) Management Program continues to address the WNV problem through an integrated pest management program that consists of identifying and prioritizing approximately 1,300 catch basins and detention basins. Public areas found to be in high priority of mosquito control treatment are sampled and treated with the larvicide Natular XRT. Natular XRT is an extended release tablet that prevents mosquito larvae from developing to adults and lasts up to 6 months.

Throughout the year, the EESD provides public education and community outreach activities through the WNV hotline, Township newsletter articles, and printed materials. The website provides additional information, such as the modes of virus transmission, means of prevention, and how to reduce the risk of exposure. There were no recent cases reported of the WNV in the Township. However, the risk for contracting the disease is still present in Southeast Michigan.

# Community Involvement

## Open House

EESD staff participated in Bloomfield Township's annual Open House held on October 1, 2017. EESD answered questions, displayed information, and educational materials addressing storm drain awareness, water conservation, earth-friendly landscape materials, fertilizer education, car washing techniques, proper HHW disposal, Emerald Ash Borer, West Nile Virus, "Ours to Protect" materials. In addition, EESD staff handed out 100 white pine saplings.

The EESD held two free raffles this year in conjunction with the DPW-Grounds Division. The first being a tree raffle and the second being a gain pumpkin contest where participants had to come guess the weight of the pumpkin.

## Rouge River Rescue

Each spring, Friends of the Rouge (FOTR), in partnership with communities throughout the Rouge Watershed, brings volunteers together from across the watershed to work towards the common goal of improving the Rouge River. This annual event began in 1986 with volunteers removing large quantities of trash from the river. Today, much of the event is focused on river restoration.

Also volunteers work to remove invasive plants from the river corridor, bed in native plantings, and stabilize stream banks to improve the health of the river.



The EESD partnered with FOTR to host a River Rouge Rescue at the EL Johnson Nature Center in Bloomfield Township. This year the event was held on April 22, 2017. A total of 29 volunteers participated. Work involved volunteers picking up trash along 1.5 miles of Franklin Road and removing invasive plants on the nature center grounds. A total of three bags were removed with trash, and eight bags of invasive species were filled with garlic mustard, honeysuckle, and buckthorns which were removed. Other activities included wood debris management, public education activities, nature walks, and trail maintenance.

## Rouge River Water Festival

The 2017 Rouge River Water Festival hosted at the Cranbrook Institute of Science took place from September 12<sup>th</sup> - 15<sup>th</sup> and accommodated 58 classes consisting of 1,689 fourth and fifth grade students, teachers, and chaperones from the Rouge River Watershed community schools in Oakland County. The EESD provided a staff member to be a group leader for part of the Festival.

# Upcoming in 2018

In 2018, EESD will continue to oversee the Township's construction projects and continue to provide support to Township departments regarding the environment, natural features, building projects, and Township utilities.

Some of the Township projects scheduled for 2018 include:

- ❖ Cedar Hill Sanitary Sewer Extension - The extension of sanitary sewer from Forest Lane to serve the northerly most eight homes on Cedar Hill Drive.
- ❖ Westchester Phase III Water System Enhancement - As part of the Township's continuing capital improvement program, the existing water mains in Westchester Village Subdivision are being replaced. The 2018 project area consists of Bennington Court, Berkshire Drive between Lahser Road and Farmingdale Drive, Hillboro Drive between Wadsworth Lane and Westbourne Drive.
- ❖ Overbrook Subdivision Special Assessment District #417 - SAD #417 consists of paving the roads with the Overbrook Subdivision which include Overbrook Road, Pine Valley Way, Nearbrook Road, and Sandwich Road. The cost of the project will be split between the 65 properties that make up the Special Assessment District.
- ❖ 2018 Safety Path Program - The 2018 Safety Path Program consists of two routes. The first route is part of the Master Plan and is a mile long path on the south side of Lincoln Road. The second route is a path about three quarters of a mile on the east side of Telegraph Road between Maple Road and Quarton Road and connects existing paths on Quarton Road and Maple Road.