

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.



2015 Annual Review

Engineering & Environmental Services
Department

BLOOMFIELD TOWNSHIP
UTILITY OF THE YEAR 2015
OVER 15,000 POPULATION
MICHIGAN RURAL WATER ASSOCIATION



Engineering & Environmental Services Staff

The following are current EESD employees with their years of dedicated service to the Township.

Wayne Domine, PE, Director (24 years)

Department Head, responsible for supervising the overall activities of the Engineering and Environmental Services Department in conjunction with the needs to sustain the operation of the Township's water supply system and sanitary sewer system, and other public works activities.

Lance Scram, Project Coordinator (18 years)

Responsible for coordinating public works construction projects in conjunction with the Township DPW, consultants, contractors, other public agencies, and customers. Also assists the Department of Public Works with snow removal activities when needed.

Olivia Olsztyn-Budry, PE, Township Engineer (6 years)

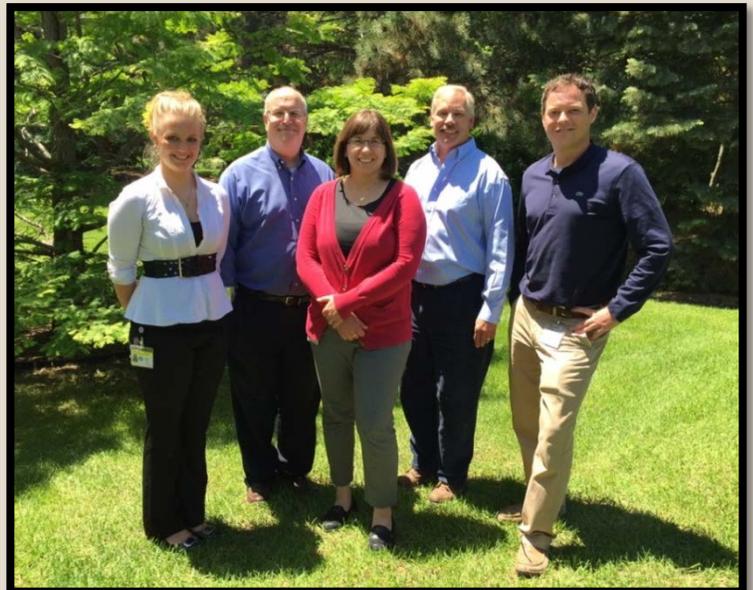
Responsible for managing public water and sewer improvement projects in conjunction with the needs of the Township's DPW operations. Provides technical support associated with the planning and construction of public improvements, private development, and review of site development projects submitted for building permits.

Charles Markus, Program Coordinator (4 years)

Responsible for implementing the activities involving management of the Township's environmental programs to meet regulatory compliance.

Angela Pasciolla, Staff Engineer (1 Year)

Responsible for conducting reviews on building permit applications on behalf of the DPW- Water Division and for coordinating construction of private developments with DPW - Water Division.



EESD Team (left to right): Angela Pasciolla, Wayne Domine, Olivia Olsztyn-Budry, Lance Scram, and Charles Markus.

Engineering & Environmental Service Department
**2015 Support & Technical
Assistance**

Support, Technical Assistance, & Project Summary

The 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 removal 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).

Below is a numerical summary of projects and work that the EESD either managed or provided assistance in 2015:

- ❖ 325 building, tree, and fill permit reviews
- ❖ 2.64 miles of new safety path
- ❖ 2,012 tons of asphalt for road paving overlays
- ❖ 46,134 square feet of concrete road repair
- ❖ 3.2 miles of new road through Special Assessment Districts process
- ❖ 1.3 miles of new road through Township projects
- ❖ 18,550 feet (3.5 miles) of new water main
- ❖ 3,560 feet (0.7 miles) of new sanitary sewer
- ❖ 44,630 feet of joint sealing
- ❖ 96 right of way permit reviews
- ❖ 10 new private development engineering plan reviews and project oversights

Engineering & Environmental Service Department

2015 Department Highlights

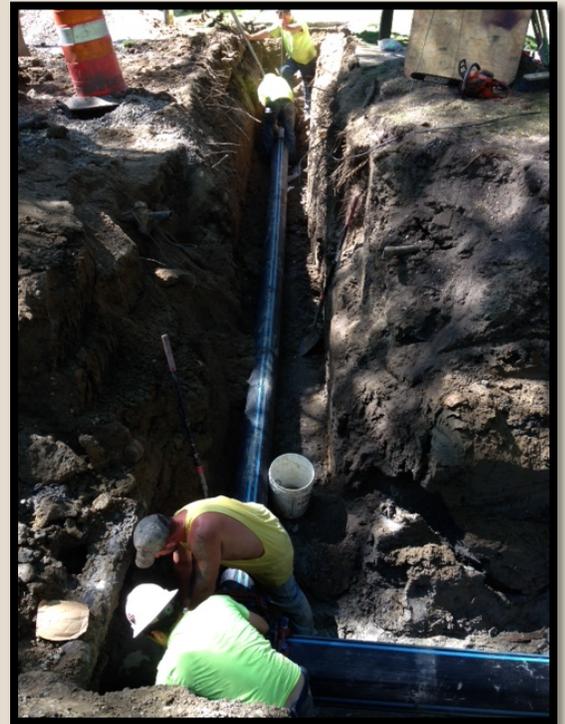
Water System

Bloomfield Village Water Main Replacement Phase II

As part of the Township's continuing capital improvement program, existing water mains in Bloomfield Village, which varies 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 four major phases.

Phase I of the project began in October of 2013 and was completed in November of 2014. This phase focused on upgrading the oldest water mains constructed in 1925. The majority of these water mains lay east of Covington Road and west of Cranbrook Road. In total 5.2 miles (27,500 feet) of pipe had been replaced in this phase.

Phase II of the project began in March of 2015 and was completed by November 2015. Bidigare Contractors, the contractor who did the work on Phase I of the project, was awarded an extension of their contract to complete the Phase II work. Phase II consisted of upgrading water main on and south of Burning Bush Road, north of Maple Road, on and east of Hupp Cross, west of Hamilton, and on Covington Road between Quarton Road and Maple Road. 3.4 miles (18,015 feet) of water main pipe was replaced this year during Phase II.



Using the open cut construction method to place and connect new water main.



Pulling new water main underground.

Concluding Phase II, approximately 68% of the pipes in the Village have been replaced. Moving forward there is approximately 35,945 feet of old water main remaining that will be replaced in Bloomfield Village. It is projected that 15,150 feet of pipe will be replaced in Phase III and the remaining 20,795 feet of pipe will be replaced in Phase IV. Phase III of the project is expected to start in spring of 2016.

Water System

Covington Road Water Main Replacement

In conjunction with the Phase II Bloomfield Village Water Main Replacement project, Covington Road between Quarton Road and Cranbrook Road was reconstructed. The Covington Water Main Replacement project was performed in order to complete the connection of the Township's water system to the SOCWA water supply on Quarton Road. The Covington Project extended 12-inch water main along Covington and Cranbrook Roads where it connected to the existing 12-inch water main on Bradway Road. The new 12-inch water main replaced the existing 6-inch water main that was installed in the 1920's.

Challenges that faced this project included a number of existing utilities located within the Covington Road right of way, including 6-inch and 16-inch diameter water mains, sanitary sewer, storm sewer, natural gas, and electric that left scarce space to effectively install an additional utility. The existing 6-inch water main was situated at a shallow depth and located under the road surface. Bidigare Contractors was hired to abandon the existing 6-inch water main and install a new 12-inch water main at a deeper depth. The open cut method was utilized for this process, which required the removal of a stretch of Covington Road.



Covington Road at completion of project.

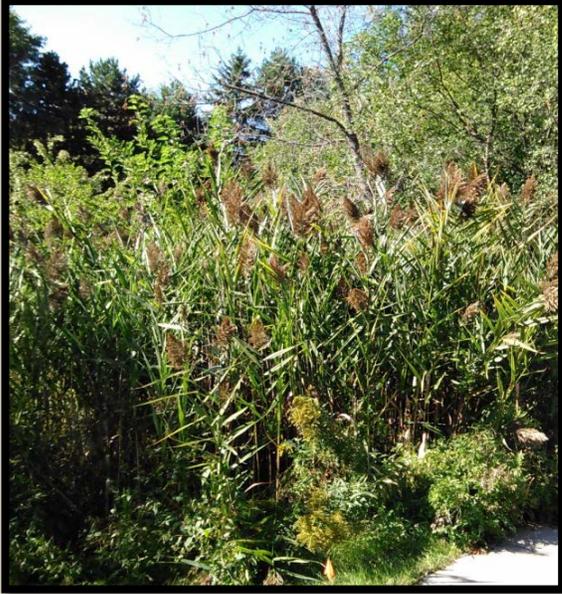


Installing new gate valve and well.

The work on the water main started in July of 2015 and finished in October of 2015. Approximately 1 mile (5,370 feet) of water main was replaced on Covington Road. Reconstruction of Covington Road began immediately after the water main was installed. The 1.3 miles of new road with curb and gutter was finished by the end of 2015.

Grants

RCOC Invasive Species Grant



Phragmites at one of the eight treatment sites. Phragmites (above) before treatment is compared to Phragmites (below) after two rounds of treatment.



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 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.

Eight sites along RCOC roads were identified by the EESD and approved for funding by CISMA and RCOC. Upon approval, a licensed pesticide applicator company, Vigiplante, was hired by the Township to treat the eight known locations containing phragmites. The application proved to be effective as evident in the decay of the plants after two rounds of treatment.

Phragmites is an aggressive species that will regrow if not treated on an annual basis. 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.

Grants

US Forestry EAB Tree Grant

In 2015, the Alliance of Rouge Communities (ARC) was awarded a \$100,000 grant from the US Forestry Service to purchase and plant 680 trees. 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 a few years ago. 14 communities involved with the ARC expressed interest in participating in this grant, including Bloomfield Township. Out of the 680 trees purchased, the Township was awarded 125 trees through the grant. 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.

Grants

DTE Tree Grant

The Detroit Edison Co. (DTE) Energy Foundation and the Michigan Department of Natural Resources (MDNR) partnered once again to fund tree-planting projects across Michigan. A total of \$175,000 was available, in matching grants of up to \$4,000 each, to be awarded on a competitive basis.



Newly planted trees in the Telegraph Road Corridor near Franklin Road.

Eligible applicants included local units of government, nonprofit organizations, tribes, and schools and must have been located within the service territory of DTE Energy. Tree-planting projects must occur on public property such as parks, street rights-of-way, and school grounds. All grants required a 1-to-1 match, which could be made up of cash contributions or in-kind services, but could not include federal

funds. Planting must be completed by May 31, 2016.

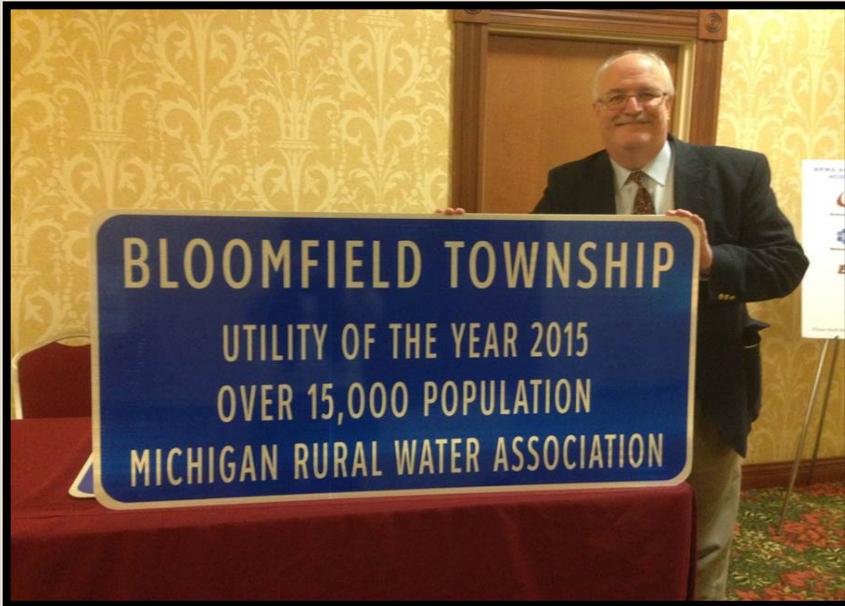
Bloomfield Township was awarded the maximum amount of \$4,000 and is using this money to not only plant new trees on the Telegraph corridor, but also to remove several trees that have died and / or pose safety hazards along this same corridor. EESD is working with the DPW - Grounds Division to schedule tree plantings for early spring of 2016.



Newly planted trees in the Telegraph Road Corridor near Lone Pine Road.

Awards

MRWA Utility of the Year



Wayne Domine accepting the MRWA Utility of the Year award on behalf of Bloomfield Township.

In March, Bloomfield Township was awarded the Michigan Rural Water Association (MRWA) “Utility of the Year - over 15,000 Population” for both water and wastewater. The award was presented at MRWA’s Management and Technical conference held in Traverse City. Bloomfield Township’s EESD Director, Wayne Domine, was present to accept the award. Bloomfield Township has always put the management and maintenance of its utilities in the forefront of its daily operations and will continue to do so in order to stay ahead of State and Federal required mandates.

Roads

Special Assessment Districts

The Homeowners in four subdivisions requested the Township create a Special Assessment District (SAD) to pave their roads. The EESD drafted the petition, and oversaw the SAD process on behalf of the subdivisions. The construction of the paving projects were managed by the Township's consulting engineers, HRC, under RCOC permits. The EESD acted as a liaison between the Township, RCOC, and residents during the projects. A total of 158 properties were included in the assessment and 3.2 miles of road was repaved, costing roughly \$1.7 Million.

SAD #411: Kentmoor Road



Romney Road facing East (Before)

Cost:

\$13,265 /home

Road Mileage:

2.1 Miles

No. of Homes:

77



Romney Road facing East (After)

SAD #412: Dell Rose Drive



Dell Rose Drive (Before)

Cost:

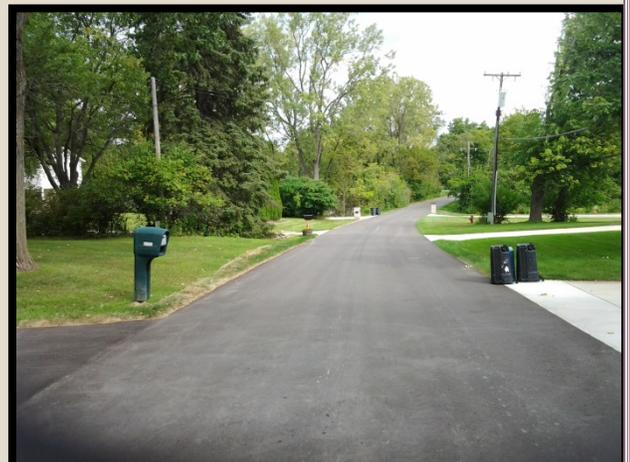
\$8,252 /home

Road Mileage:

.313 Miles

No. of Homes:

25



Dell Rose Drive (After)

SAD #413: Concord Green

Cost:

\$9,050 /home

Road Mileage:

.66 Miles

No. of Homes:

46



Lampwick Court (Before)



Lampwick Court (After)

SAD #414: Palmer Woods

Cost:

\$9,330 /home

Road Mileage:

.152 Miles

No. of Homes:

10



Wellsley Court Entrance (Before)



Wellsley Court Entrance (After)

Engineering & Environmental Service Department

2015 Summary Review

Construction Projects

Road Reconstruction Tri-Party Agreement

As part of the Tri-Party Program, Bloomfield Township, along with the City of Beverly Hills and the RCOC, contributed towards the funding for repaving Lahser Road between 13 Mile and Maple Road. The scope of the project also included drainage improvements and extension of turn lanes on Lahser Road.

The project was split into two phases. Phase I consisted of a complete road closure on Lahser Road between 14 Mile Road and Maple Road, and Phase II consisted of a road closure on Lahser Road from 14 Mile Road to 13 Mile Road, for road resurfacing. The RCOC contracted Cadillac Asphalt to preform the work. Work started at the end of June and was completed in October.



Newly paved Lahser Road south of Maple Road.

Concrete Replacement Program

Each year, funds are allocated to remove and replace sections of concrete road within the Township. Although the roads are under the jurisdiction of the RCOC, residential roads are evaluated and selected for repair by Township staff. Selection criteria include RCOC Paser Rating, the number of complaints, age of road, location of repair, and type of pavement issues. In 2015, over 46,134 square feet of concrete was removed and replaced in several locations throughout the Township.



Old concrete on Spring Grove.



New concrete patch on Spring Grove.

Asphalt Overlay Program

In 2015, funds were budgeted to contract a portion of the paving to supplement the DPW - Road Division in completing their annual asphalt overlays on subdivision roads. This contracted work is necessary due to the short paving season in Michigan. The EESD staff developed specifications and solicited bids from paving contractors and the DPW - Road Division oversaw the work. Over 2,012 tons of asphalt was overlaid in seven subdivisions. These overlays are temporary repairs that will extend the current use of the roadway surface.



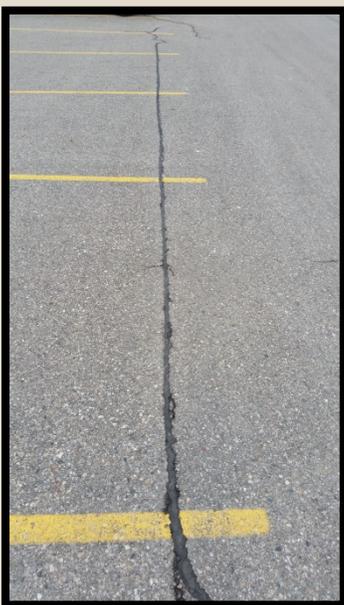
Old asphalt at Tully Road and McEwen Road.



New asphalt patch at Tully Road and
McEwen Road.

Joint Sealing

In 2015, the Township contracted to have 44,630 linear feet of joint sealing completed. The EESD staff developed specifications and solicited bids from joint sealing contractors. Work was performed by Ash-Con on various roads in the Township as well as the Township Campus parking lots.



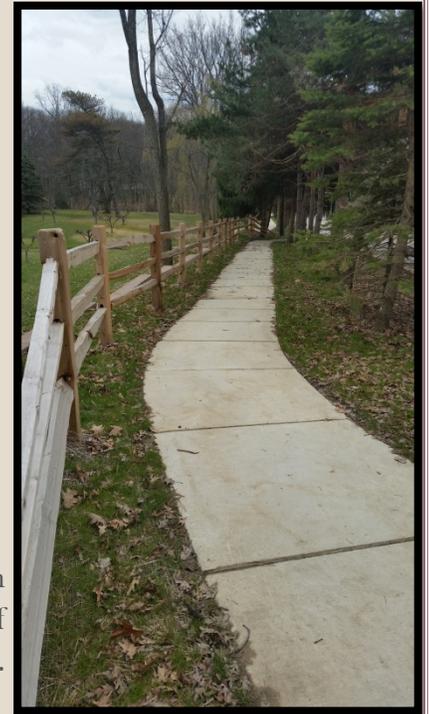
Joint sealing in parking
lot of Township.

Safety Path Program

In 2015, 2.64 miles of new safety path was constructed as part of the master plan approved with the 2008 millage renewal. These areas included:

- ❖ Adams Road - from Ashover Road to South Boulevard;
- ❖ Wattles Road - from Kensington Road to Squirrel Road; and
- ❖ Kensington Road - from Mohr Valley Road to Wattles Road.

New safety path on Kensington Road south of Wattles Road.



New Shops of Bloomfield off Telegraph Road.

representatives are on site to observe and inspect the construction per the approved plans. Bloomfield Hills High School, Tel-Square Plaza, Shops of Bloomfield, Turtle Grove Subdivision, and Goddard Court Sanitary Sewer Extension are five of the projects that were completed in 2015. In 2015, the EESD collected approximately \$185,610 in fees for review and inspection for these five projects alone.

Escrow Accounts

The EESD manages new private construction through the use of escrow accounts. Developers, or homeowners, interested in constructing private facilities in the Township post funds with the Township for the EESD or the Township's consultant to review construction plans for conformance with the Township's engineering ordinance and standards for construction and connection of public water and sewer. During construction, Township



New Tel-Square Plaza

As part of these projects, the developers are installing approximately 2,415 linear feet of water main and 2,960 feet of sanitary sewer.



New Bloomfield Hills High School

Sanitary Sewer Extensions

Kensington & Ivy Lane Sanitary Sewer Extension

In October 2014, the Township received a request to prepare an official petition to extend public sanitary sewer to 721 and 741 Ivy Lane. In December of 2014 the petition for extending public sanitary sewer up Kensington Road and then turning east and continuing up the north side of Ivy Lane was submitted to the Township. The Township Board approved the resolution to proceed with Special Assessment District #410. In March of 2015, Superior Excavation was awarded the contract for constructing approximately 550 feet of new public sewer. The project was completed in October 2015.

DPW Vehicle Wash Pad

In 2014, the Michigan Department of Environmental Quality (MDEQ) came to the Township to conduct an audit on our current procedures in place for Storm Water Management as required under the Township's NPDES MS4 permit issued in 2003. One of the comments made by the MDEQ representative was that the water from rinsing the Township's vehicles was discharging directly into a nearby storm catch basin. The MDEQ requires that a procedure be put in place to correct the current practice by eliminating rinse water from entering the storm sewer and instead directing it to the sanitary sewer.



Installation of new sanitary manhole.



New vehicle wash pad

In 2015, a 15' x 50' sloped concrete pad for the purposes of collecting the wash water and outletting it to the existing sanitary sewer via a new 8" sanitary sewer pipe with a trapped catch basin was constructed. Work commenced in October 2015 and was completed within a month.

EESD Programs

In addition to construction projects, the EESD manages and oversees several Township-wide programs both specific to EESD and in coordination with other departments.

Intern Program

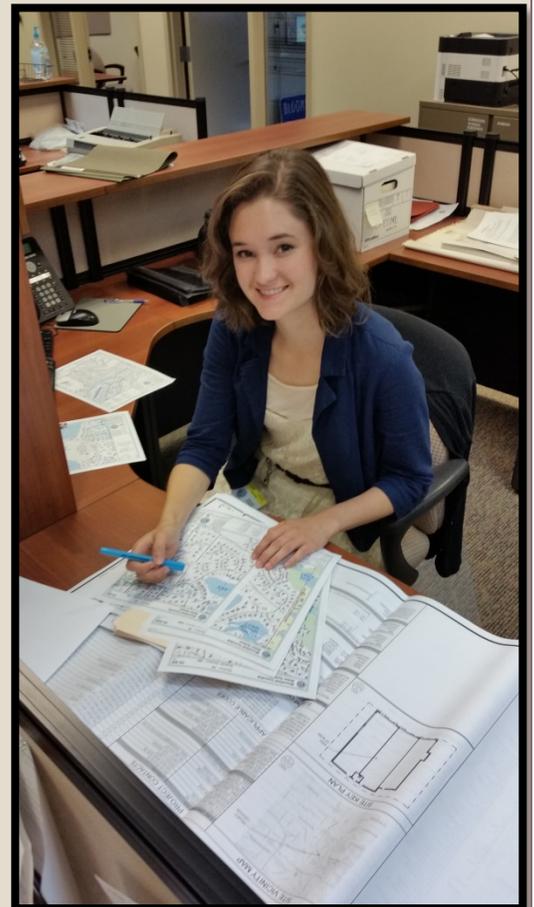
In 2015 the EESD continued our intern program with two student interns: Ava Shuttie from U of M - Ann Arbor, and Angela Pasciolla from Lawrence Technological University. The interns worked closely with EESD staff to gain experience in construction management, plan review and inspection, and administration of environmental programs. Interns assisted EESD staff with various tasks, including:

- ❖ Performing tree inspections,
- ❖ Ordinance violation inspections,
- ❖ Administrating the West Nile Virus program (including sampling and treatment),
- ❖ Performing engineering and building plan reviews,
- ❖ Inputting data for the water and sewer systems, and
- ❖ Conducting construction site visits for Township projects.

In May of 2015, Angela Pasciolla graduated with her Bachelors of Science in Civil Engineering and was offered a full time position with the Township as EESD's Staff Engineer.



Angela getting ready for the work day.



Ava reviewing the Township's numerous water systems.



Residential tree protection fencing

Tree Preservation & Protection Ordinance

The EESD works with the Planning, Building, & Ordinance Department to assist Township residents and contractors in the form of pre-application meetings, site visits, plan evaluation, and phone conversations with perspective applicants and interested residents. After a tree permit application is submitted to the Building Department, the EESD staff reviews the application and inspects the site to confirm the work to be done.

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 two year phase for this permit process begins in Spring of 2016. 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 the Storm Water Pollution Prevention Initiative (SWPPI) plan which was required as part of the 2003 National Pollutant Discharge Elimination System (NPDES) general permit for our Municipal Separate Storm Sewer System (MS4) Permit.

In 2014 the Township was audited by the MDEQ for compliance with its Phase II NPDES General Permit. The Township is currently in the process of updating and generating new Standard Operating Procedures to meet the new permit requirements. The Township is also working



Pet waste bags are one of the many items offered to Township residents to help promote pollution prevention and eliminate substances, like dog waste, from entering our Township's storm drains and discharging into the surface waters of the state.

collaboratively with the ARC to meet the following permit items: Public Education Plan, Public Participation Plan, Illicit Discharge Elimination Plan, and the Total Daily Maximum Loads Plan. The Township is required to reapply for the NPDES permit by April 1, 2016.

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.

Township intern placing the Natular tablets into the storm catch basins.

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.



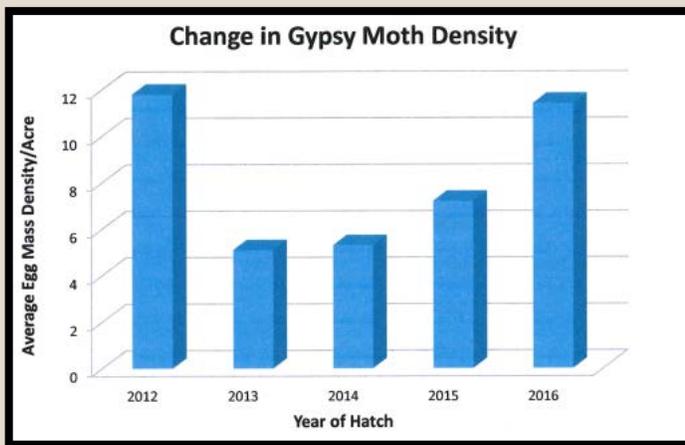
Adult gypsy moths were spotted on the branches of this pine tree during the monitoring and inspection process.

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 the spring, fungus inoculations were applied to trees in many locations throughout the Township.

The results of the data collected in 2015 revealed the average egg mass density for the managed areas increased by 58.3% from 7.2 EMA to 11.2 EMA, which will hatch in spring of 2016. The number of focal areas of infestation also increased from 33 to 36.



The 2015 gypsy moth program was the final year of a three-year contract with National Gypsy Moth Management Group. The Township Board passed a resolution on September 28, 2015 to extend the Township's contract with the National Gypsy Moth Management Group for the next 8 years. This program will be up for renewal in 2024.



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

Community Participation



Dean (left) and Charles (right) showing off the giant pumpkin that was raffled off at this year's Open House.

Open House

EESD staff participated in Bloomfield Township's annual Open House held in October. 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, and 2015 safety path maps. The EESD held two free raffles this year in conjunction with the Grounds Department. The first being a tree raffle and the second being a giant pumpkin contest where participants had to come close to guessing the weight of the pumpkin. In addition to the two raffles,

new this year under the EESD tent was a bunny exhibit where kids could pet the bunnies provided by Angela Pasciolla.



EESD's bunny exhibit featured 4 Mini Holland Lops, two boys (Tanner and Patches) and two girls (Cali and Willow).

River Rouge 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.



Volunteers removing invasive species from Bloomfield Township's E.L. Johnson Nature Center.

acre of land. Other activities included wood debris management, public education activities, nature walks, and trail maintenance.



Wood provides important habitat and structure in the stream. Turtles bask on a log at the E.L. Johnson Nature Preserve.

River Rouge Water Festival

The 2015 Rouge River Water Festival hosted at the Cranbrook Institute of Science took place from September 15th - 18th and accommodated roughly 2,000 fourth and fifth grade students from the Rouge River Watershed community schools in Oakland County. The water festival was a half day educational experience where students learned about the central role water and the Rouge River plays within their region.



Wayne County Department of Public Services gave a presentation about micro invertebrates titled "Don't Bug Me".

EESD provides a staff member to be a group leader for a class of fifth graders from Mary Helen Guest Elementary School from Walled Lake. The group attended four different exhibitions, each presentation lasting roughly 30 minutes. The presentations were designed to be interactive, hands-on learning experiences and focused on water, its uses, and critical importance to us and the environment.



A presentation given by members of Friends of the Rouge on macroinvertebrate.



The US Forest Services gave a presentation on how trees help filter pollutants out of water titled “Forests to Faucets”.

Engineering & Environmental Service Department

A Look Ahead

A Look Ahead

As we look ahead to the future, 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.

Planned for 2016:

- ❖ Manage the water system capital improvement projects in compliance with the Safe Drinking Water Act requirements
- ❖ Assist with homeowners in constructing new water or sewer projects
- ❖ Assist with the construction of new water and sewer improvements necessary with new building developments
- ❖ Participate with the WRC on regional sanitary sewer system improvements to meet state pollution regulations
- ❖ Work with the WRC on constructing new Chapter 20 Drains
- ❖ Develop an Asset Management Program for the water system and to comply with the Safe Drinking Water Act requirements

