

# ENGINEERING DEPARTMENT

*2015 ANNUAL REPORT*



City Engineer: Dale Vandersommen, P.E.

2/17/2016

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## DEPARTMENT'S MISSION STATEMENT:

The mission of the City of Lorain Engineering Department is to provide expedient technical engineering services and advice to all city departments, the administration, and the general public. Generally the technical support is related to design, inspection, and contract administration of public improvements and subdivisions, plan review, grading, draining and general construction information.

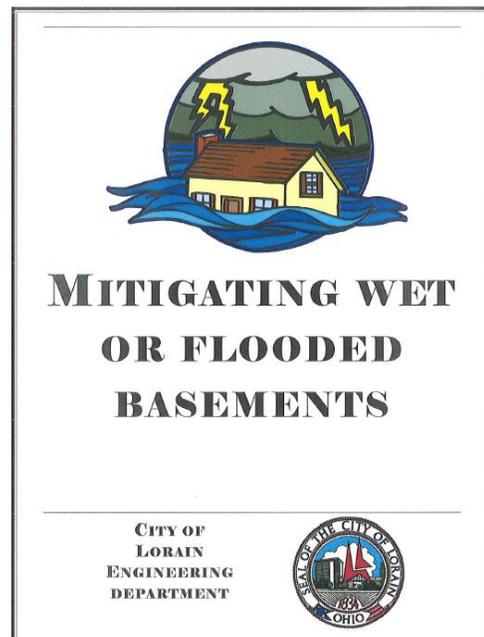
## ENGINEERING DEPARTMENT RESPONSIBILITIES

The Engineering Department is responsible for approximately 262 miles of public right-of-way, bridges, and culverts. The Engineering Department's responsibilities include design, construction management, permitting, and construction inspection of roadways, bridges, culverts, and sewer systems in the City of Lorain.

## CITIZEN INFORMATION

Citizens can request information from the COL Engineering Department. Including the grading of their property, drainage concerns, main sewer and lateral locations back up information, etc.

The Engineering Department created the Mitigating Wet or Flooded Basements pamphlet to inform citizens and answer frequently asked questions. It is available on the COL website and in the COL Engineering Department.



## INVESTIGATIONS

Field investigations are carried out when the situation warrants it.

2015 Investigations include:

- 11 drainage complaints, grading

## INVESTIGATIONS (CONT.)

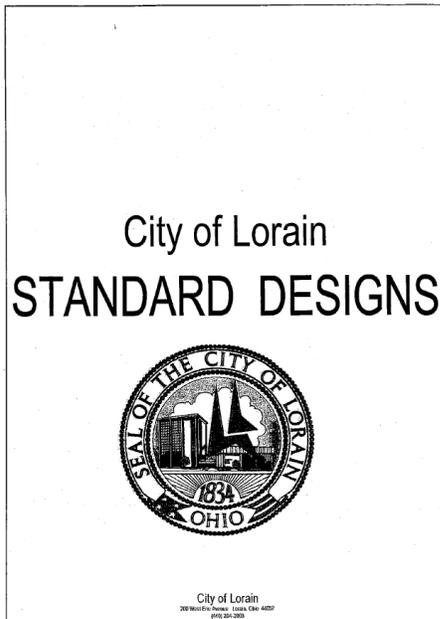
- 3 drainage complaints, roadway
- 23 drainage complaints, alley, yard, downspout/underdrain
- 11 drainage complaints, storm/sanitary issues
- 5 flooding complaints
- 2 Beach erosion complaints
- 3 Driveway complaints
- 2 Sump pump discharge complaints
- 3 Alley complaints
- 3 Tree lawn complaints
- 12 Sidewalk complaints
- 1 Sign complaint
- 4 Apron complaints
- 2 Illicit Discharge complaints

## ENGINEERING DEPARTMENT STAFF

The Engineering Department is comprised of Professional Engineers, Engineer Interns, Professional Surveyors, Engineering Aides, Contract and Grants Administrator, and a Technical Administrative Assistant.

- Georgene Gedling, Technical Administrative Assistant
- Doug Hasel, P.S., Engineer III
- Kathryn Hoffmann, Storm Water Manager
- Katie McGannon, Engineering Aide
- Matthew Miley, P.S., Engineer III, GIS Specialist
- Veronica A Newsome, E.I., Engineer II
- Jessica Potter, Engineering Aide III
- Daniel Rodriguez, P.E., Deputy Director of Engineering
- Ryan Simon, P.E., Engineer III
- Phil Turske, Contract Administrator
- Dale Vandersommen, P.E., City Engineer

## STANDARD DESIGNS



The Engineering Department updated the City of Lorain Standard Designs and Specifications to provide guidance to developers, engineers, surveyors, contractors, public and private utilities, various city departments, and private property owners. Design standards include sanitary, storm, pavement, and miscellaneous items that those mentioned are expected to follow designs.

Contract work shall be governed by all provisions set forth in the State of Ohio Department of Transportation Construction and Material Specifications, current version, and any other supplemental specifications per

individual project contract documents.

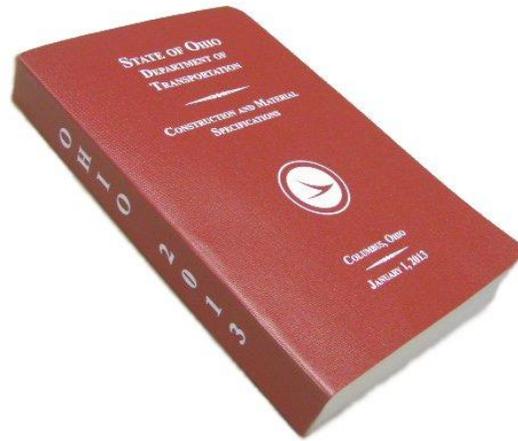
## PROJECTS

### OHIO PUBLIC WORKS COMMISSION (OPWC)

OPWC provides financing for local public infrastructure improvements through both the State Capital Improvement Program (SCIP) and the Local Transportation Improvement Program (LTIP). SCIP is a grant/loan program for roads, bridges, water supply, wastewater treatment, storm water collection, and solid waste disposal. LTIP is a grant program for roads and bridges only. See Exhibit A for a list of projects completed with OPWC funding in 2015.

## OHIO DEPARTMENT OF TRANSPORTATION (ODOT)

We are collaborative partners with ODOT who oversees Interstate, State and US routes. ODOT oversees the planning, engineering, and construction of many of the major roadways, bridges, and culverts on the state transportation system. In 2015 ODOT's Urban Paving program completed planning for one project in the City of Lorain. State Route 57, from East 36<sup>th</sup> Street to West Erie Ave., will be resurfaced as part of the Urban Paving Program in 2016.



## OHIO WATER DEVELOPMENT AUTHORITY (OWDA)

OWDA provides financial assistance for environmental infrastructure from the sale of municipal revenue bonds through loans to local governments in Ohio and from issuance of industrial revenue bonds for qualified projects in Ohio.

## MISCELLANEOUS PROJECTS

### LAKEVIEW PARK STORM SEWER OUTFALL

The project involved the replacement of an existing corrugated metal pipe storm sewer extending from Cooper Foster Park Rd just east of Baldwin Blvd. extending in the northwest direction approximately 84'. The cost of the project was \$102,827.

### LAKEVIEW PARK SIDEWALK

Lakeview Park has been surveyed and designed for a 6 foot sidewalk to encompass the entire park south of West Erie Avenue. The first section of this walk has been completed along West 11<sup>th</sup> Street with the remainder to be constructed in the spring of 2016.

## SURVEY / RIGHT OF WAY

### SURVEYING



The Engineering Department performs construction, topographic, hydrographic, boundary, quantity, right of way, obstruction, and GPS surveys.

Surveying is required for all engineered plans and is the first step in a properly designed project. Surveys performed for the city have assisted in settling legal issues, clarified right of way,

determined boundary limits for city

owned properties, and have accelerated the timeline of public works projects allowing both city employees and hired contractors to complete public works projects on time.

Larger surveys have been completed on several of the street repair levy improvements to begin construction in 2016. Surveys have also been done on active job sites that were constructed in 2015 to improve design and functionality of those jobs.

The following are some additional surveys:

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#### UTILITIES

- All road, storm and sanitary surveying and engineering work for contract 6WB W 5<sup>th</sup> St. and W. 6<sup>th</sup> St.
- All road, storm and sanitary surveying and engineering work for contract 6WC Broadway, Skyline and Jaeger Rd.
- Jefferson ditch profile, prepare easements, and drawings for cleaning.
- Broadway, West Erie to W. 9th St. research and survey waterline replacement and basements.
- Cooper Foster locate right of way west of Baldwin for transmission water location.
- Survey and prepare drawing for Skyline Dr. water line replacement.
- Survey and mark waterline on East 32nd St. east of bridge for replacement.
- Survey hydrant elevations on Baumhart Rd.

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## UTILITIES (CONT.)

- Locate water line per plan on Colorado Ave. west of Missouri Ave. for future addition.
- Stake right of way on Brownell Avenue north of Second St. for waterline replacement.
- Coordinate engineering and prepare drawings for erosion repair at Lakeview Park.
- Prepare survey, engineering and easements for storm line sink hole at 3200 W. Erie Avenue.
- Survey Laura Lane for private storm tile and drainage issue.
- Survey water transmission for location at Tower Blvd. and Leavitt Rd.
- Locate Utilities with GPS various locations: Tower Blvd. and Leavitt Rd., West Erie end of Kolbe, E. 31<sup>st</sup> St. Bridge for waterline location.
- Design storm drainage for Skyline at Leavitt Rd.
- Stake boundary at 825 Lexington regarding a gas line dig done by the Water Department.
- Create storm easement for 1925 N. Ridge Rd.
- Set right of way on Russell Ave. for Water Department.
- Survey Lorain Drive from East 37<sup>th</sup> St. to East 39<sup>th</sup> St. for new waterline.
- Survey storm line extension on Vassar Avenue.
- Prepare easements for waterline west of Leavitt Rd. between Skyline Dr. and Meister Rd.
- Prepare easements for waterline between Oxford Ave. and Pickett Rd.
- Prepare easements for waterline on Jaeger Rd. south side near Crossing Trail.
- Survey East 36<sup>th</sup> St storm tile replacement.
- Survey West Erie storm tile repairs for new Dollar General.

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## STREET DEPARTMENT

- Locate right of way Marshall Ave. north of W. 35<sup>th</sup> St.
- East 41<sup>st</sup> St. survey and station right of way Pearl Ave. to Woodland Ave.
- Survey for truck washout pad construction located at City Garage – Street Department.
- Stake city property line on Pennsylvania Ave. north of Crehore Ave.
- Survey grade and design to correct flow in the W. 4<sup>th</sup> St. alley between Oberlin Ave. and Hamilton Ave.
- Survey Ivanhoe Dr. grade end of Brookview Dr. due to a drainage issue at curb.
- Survey and design Lakeview Park for sidewalk installation.
- Survey lot split at West Erie Avenue Motel.
- Prepared parcel descriptions for Brownell Subdivision.

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## POLICE

- Survey Kansas Ave. at railroad tracks – check grade at accident scene.

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## GRADING APPROVALS

Preliminary Grade review for drainage. Certified Grade review for occupancy.

- Preliminary Grade Approvals: 137
- Certified Grade Approvals: 103

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## PLAT REVIEW

The following plat reviews were performed by our Professional Surveyor:

- Gardens of Morningside Phase 2
- Manors of Morningside Phase 2

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## LOT SPLITS REVIEWED

- Second Harvest
- USX
- Church of North Coast
- Tower and Leavitt Rd.
- Arizona Avenue
- RTI

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## LOT SPLITS PREPARED

- USX
- Historical Society – 5<sup>th</sup> St.
- West Erie and Pueblo

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## EASEMENTS PREPARED

- Nine easements for Skyline and Oxford waterline project
- Two easements on West Erie Avenue
- Two easements on W. 5<sup>th</sup> St.

## INSPECTIONS

Inspection services validate that the work performed complies with the scope detailed in the permit description. The types of inspections vary depending on the nature of the project.

Before a permit can be completed and closed, all required inspections must be approved.

In 2015 the Engineering Department performed the following inspections:



### CONCRETE - INSPECTION

- Sidewalk – 304
- Apron - 242
- Handicap Ramps – 3
- Curb And Gutter – 16
- Sidewalk Evaluations –
- Open Pavement – 92

### STORM SEWER AND SANITARY SEWER - INSPECTION

- Sanitary – 21
- Storm – 113
- Inlet – 33



## SUBDIVISIONS - INSPECTION

- The Gardens, The Villas, The Manors of Martin's Run

## PROJECTS - INSPECTION

- Colorado Avenue
- Hamilton Avenue
- Washington Avenue
- Contact C - 2014 SRL
- Contract D - 2014 SRL
- OPWC 28 A
- OPWC 28 B
- OPWC 29 A

## PAVEMENT MANAGEMENT RATINGS

Pavement ratings are constantly being updated in an effort to have the most current information. Information obtained from these ratings is used in the assessment of current roadway conditions, the determination of needed maintenance, repairs, and/or reconstruction. Pavement ratings are used as a tool to aid in the process of prioritizing roadway work within the City of Lorain.



## CONCRETE TESTING

Concrete testing is performed on all capital improvement projects. Testing is done in accordance with applicable American Society for Testing and Materials (ASTM) standards by an American Concrete Institute (ACI), Certified Concrete Field Technician. A sample is obtained in the field, then allowed to cure, then compression tested in a lab.

Concrete samples are obtained in the field during paving operations as well as other operations where a substantial volume of concrete is being used. Samples are cured for at least 7 days before first compression test is

performed. Multiple samples are taken so that compression testing can also be performed at 28 days.

#### CONCRETE TESTING (CONT.)

Concrete is said to be fully cured and have developed the majority of its strength at 28 days.

Testing is performed to make sure that what is being specified in plans and contract documents is what is being constructed in the field.

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#### ASTM TESTING PERFORMED

- ASTM C172 - Sampling
- ASTM C143 - Slump
- ASTM C438 - Density
- ASTM C231 - Air Content
- ASTM C31 - Cylinders

#### CONTRACT MANAGEMENT

#### GRANTS

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#### 2015 LORAIN COUNTY SOLID WASTE GRANT

- Enhanced/replaced current infield dirt with recycled diamond dust at four ball fields at Lakeview Park and two fields at Oakwood Park.
- Grant Amount: \$18,790.89

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#### 2015 NORD GRANT

- To assist the Lorain Public Property to operate a summer educational camp for Lorain City Youths.
- Grant Amount: \$6,000.00

## CONTRACTS

- Hauling and Disposal of liquid sludge and/or filter cake from two Lorain Water Pollution Control Plants
- East 31<sup>st</sup> Street Bridge Waterline Replacement
- Elyria Avenue Waterline Replacement
- Grove Avenue Sanitary Sewer
- OPWC Round 28 Contract B
- Colorado Avenue Resurfacing
- Street Repair Levy 2014 Contract D
- Sale of “Black Fines” material located at the Black River Reclamation Facility
- BHP Grass Cutting 2015
- Hauling and disposal of water purification residuals
- Tall Grass Cutting Contract South
- Elyria Avenue Resurfacing
- Hamilton Avenue Resurfacing
- Black River Landing heron Rookery habitat Restoration Project
- South Lorain Waterline Replacement Phase 2
- Removal and Disposal of Old Filter Media Supply and Installation of New Filter Media
- OPWC Round 29 Contract A
- Broadway, Jaeger Road and Skyline Drive Waterline Replacement- Contract 6wc
- Installation of Street Sweeping Pad
- Furnishing of meters for the Lorain Utilities Department
- Martin Run Drainage Improvement Phase 1
- Restroom alterations at the Harbor house in Century Park
- Purchase of Chemicals for Utilities 2016
- Purchase of Materials for Public Properties 2016
- Purchase of Distribution Materials 2016

## AGREEMENTS

- Elevator maintenance for the City of Lorain City Hall and Police Department
- Customer Service Maintenance Agreement for LPD Equipment and Peripherals

## AGREEMENTS (CONT.)

- Property appraisals of 3005 and 3015 Jaeger Road
- Lease of the Lorain Municipal Dock Building/Site (“Hot Waters”)
- Maintenance of copiers/printers for the City of Lorain
- Leasing of copiers/printers for the City of Lorain
- Legal support services for an appropriation case involving 3005 and 3015 Jaeger Road
- Third Party Workers Compensation Services
- Maintenance agreement for LPD Fingerprinting Equipment and Printer (jail)
- PQM WWTP Grit Building Modifications
- Swimming Pool Management Agreement
- Construction, inspection and administrations services for the City of Lorain Elyria Avenue Resurfacing Project
- Professional business training services for all City Managers
- Renewal notice for preventative maintenance and emergency services agreement
- Residential street sweeping transportation and disposal services
- The inspection of the Village of Lighthouse Point Phase 1 and Phase 2
- To provide architectural designs and engineering services at Harbor House in Century Park
- To provide architectural design and engineering services for work at Oakwood Park
- Right of way use and pole use agreement
- Inspection of the sanitary force main relocation at 2601 East 28th Street
- Jaeger Road lift station improvement study
- Martin Run lift station improvement study
- Sale of used and/or obsolete water/sewer meters of the Lorain Utilities Department
- To administer the City of Lorain Tenant Based Rental Assistance Program
- Design services on the Broadway Streetscape Project
- Customer service maintenance agreement for LPD equipment and peripherals 2015

## AGREEMENTS (CONT.)

- To purchase the continued maintenance for scheduling and payroll support services to the LPD Telestaff Software
- Purchase services to install 5,000 live stake tree planting along the Black River Restoration Area
- CCTV Upgrade for Lorain Municipal Courts

## PLAN REVIEW

The Engineering Department is responsible for plan reviews. Plans related to any of the following areas must be submitted and reviewed, depending on the nature of the project:

- Residential and Commercial Development
- Sanitary and Storm Sewers
- Street Construction
- Storm Water Management
- Waterline replacements

## RESIDENTIAL AND COMMERCIAL

- Village at Lighthouse Point – Jaeger Road
- Dollar Tree – Colorado Avenue
- Dollar General – West Erie Avenue
- Multi-Tenant Retail – Leavitt Road
- Skylift -2015  
Plant  
Addition -  
Leavitt Road
- 3057  
Broadway
- US Steel - E.  
28th Street



## SUBDIVISION

- Gardens at  
Morningside  
Subdivision  
No. 2 and No. 3

- Manors at Morningside Subdivision No. 2
- Villas at Morningside

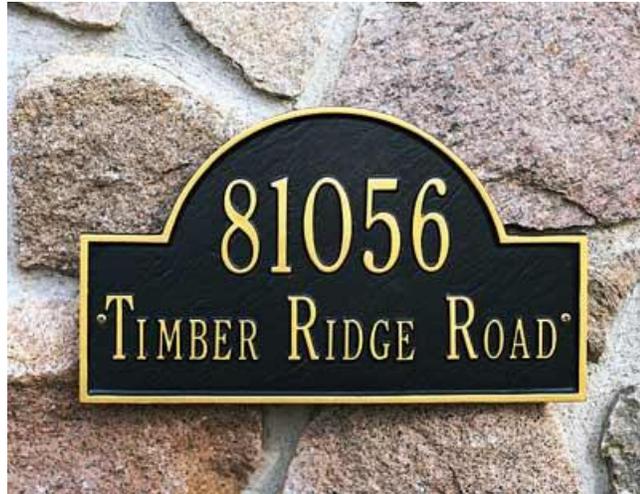
## WATERLINE REPLACEMENT

- Elyria Ave. waterline
- Skyline Dr., Broadway Waterline
- 7th, 8th, and 9th Street
- East 31<sup>st</sup> St.

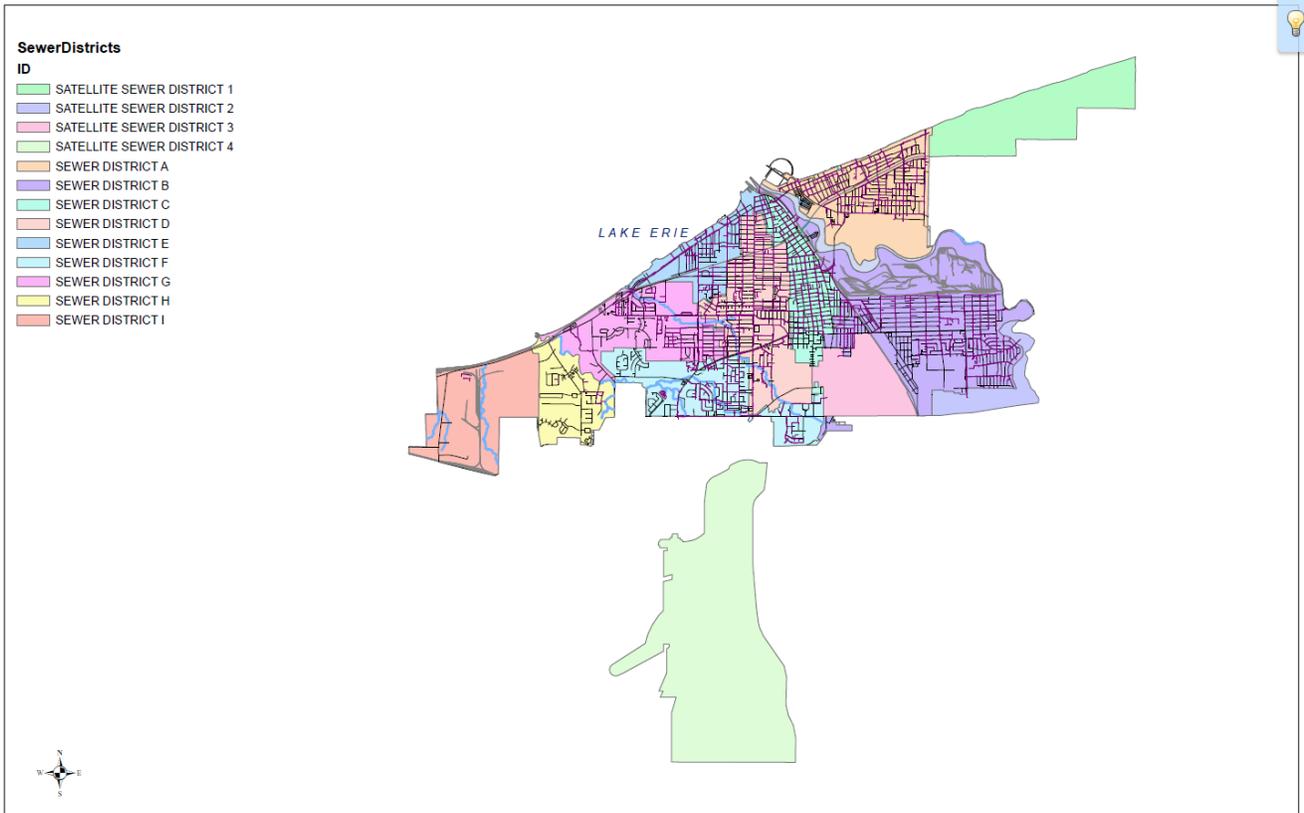
## ASSIGN ADDRESSES

MANORS AT MORNINGSID  
- PHASE 2

GARDENS AT MORNINGSID  
- PHASE 2 & 3



## MAPPING



Mapping is also a function of the Engineering Department. Maps are requested by citizens, other city departments, and the Administration. Listed below are maps that were provided to various city departments in 2015:

- City Cemetery map updates ( 60% complete on the GIS map)
- Pavement Condition Rating maps (95% complete on the GIS map)
- Maps showing roads rehabbed according to program (OPWC, Street Repair Levy, ODOT, etc.)
- Wards/Precincts
- Sex offender address check maps
- Location maps for contracts
- Location maps for OPWC applications
- Location maps for NOACA applications
- Location maps for SIB applications
- Snow plow zone maps
- Maps showing easements
- Maps showing city septic systems
- Maps for other city entities; walking tour maps for the Community Reinvestment Area maps for Community Development

## MAPPING (CONT.)

- Fire Station radius maps
- Maps for various petitions (paving, assessment, vacations)
- Outfall Maps
- MS4 Map
- Unimproved Street Maps shown Pavement Rating Map
- Maps of vacated streets/alleys
- Watershed maps
- Police District maps
- Zoning maps

## STORM WATER MANAGEMENT

- Performed 866 storm water inspections within the City.
- Performed annual site inspections of the following City properties: Black River Wastewater Treatment Plant, Water Purification Plant, Street Department Complex, and Sewer Department Complexes.
- Provided storm water training to employees in the following departments/divisions: Sewer, Landscaping, Water Distribution, Garage, and Street.
- Administered the Long Term Operation and Maintenance standards for all existing post-construction BMPs. Land owners are required to submit certified inspection reports annually by May 1.
- Continued communication with City departments and facilities to ensure all facilities within the City are brought into compliance with minimum storm water standards.
- Performed one city-wide mailings (via water billing) to educate residents on aspects of storm water management.
- Hosted the 2015 Kayak-a-Thon to raise awareness on water quality work being performed by the City.
- Along with the Ohio EPA and City of Avon Lake, developed and presented a legislative update to the Lorain County Community Alliance.
- Continued implementation of the Martin's Run Drainage Improvement Plan Phase I Project, to improve water conveyance within Martin's Run. The program includes the expansion of the flow path/creation of floodplain at Willow Park and channel cleaning at culverts from W.35th upstream to Ashland.
  - Widening of Martin's Run at Willow Creek was completed by the City of Lorain Landscaping Division in early 2015.
  - Culvert cleaning from W. 35th Street to Tower Boulevard began in December 2015 and is expected to be completed by mid-2016.

## ENVIRONMENTAL RESTORATION PROGRAM

- In August 2015, the City of Lorain was awarded the "Black River Area of Concern Remediation and Restoration Program" grant, the single largest non-competitive Great Lakes Restoration Initiative grant ever awarded by the Environmental Protection Agency. The program includes the assessment, remediation, and restoration of five (5) project areas along the banks of the Black River. The funding will provide for the installation of a groundwater treatment system as well as a landfill specially designed to house the contaminated material, steel drums, and bricks located within the five (5) project areas.
- Grant management and restoration projects active in 2015 include:
  - Black River Landing and Heron Rookery Restoration Project - Awarded \$1,347,644 to stabilize portions of stream bank and restore in-stream habitat at the Heron Rookery and Black River Landing. (NOAA funding)
  - Lower Black River Heron Rookery Restoration Phase II Assessment - Awarded \$175,000 to determine the presence and extent of subsurface contamination at the "BOP Pond", an area adjacent to the Heron Rookery, and to establish recommendations for restoration of the six-acre riverside area. (NOAA funding)
  - Near-shore Re-vegetation in the Lower Black River AOC - Awarded \$88,000 for the planting of approximately 4,000 willows along the Black River in order to filter storm water runoff, reduce turbidity, stabilize substrates, and provide habitat for fish, wildlife, and macroinvertebrates. (US Forest Service funding)
  - Drum Removal and Restoration Project: Assessment and Design Phase - Awarded \$284,500 to delineate and assess a drum disposal area location within the floodplain of the Black River and prepare remedial and restoration designs. (US Fish and Wildlife funding)
  - Lakeview Beach Green Infrastructure Project - Awarded \$250,000 to design and install a green infrastructure/storm water treatment system for the removal of bacteria at Lakeview Beach. (EPA funding)

## ENVIRONMENTAL RESTORATION PROGRAM (CONT.)

- Lakeview Beach Gull Control Pilot Program - In order to better understand water quality concerns at Lakeview Beach, the City of Lorain, Lorain County Metro Parks, and Lorain County General Health District received funding from Ohio EPA to study the water quality effects bird control affords at Lakeview Beach. The study was completed in the summer of 2015 and includes the utilization of border collies (dogs) to control the gull population. (Ohio EPA funding)

## LORAIN BLACK RIVER RECLAMATION FACILITY

- Secured a Facility Manager for the City's reclamation operation and began processing reclaimed steel mill byproduct material for reuse.

## PERMITTING

A permit authorizes a homeowner or contractor to begin the work described on the permit. The Engineering Department issues permits for aprons, sidewalks, open pavement, and sanitary and storm sewers. The following number of permits were issued in 2015:

- Apron – 168
- Sidewalk – 201
- Sanitary – 127
- Storm – 30
- Open Pavement - 63

## FINANCES

### 2015 Engineering Collections

Sewer Permits	\$12,960
Miscellaneous Sales	\$543.23
Parkland Trust Fund	\$0.00
Sewer License Fees	\$1,500.00
Deposit Held Trust Fund	\$61,466.00
Reimburse Engineering Service	\$23,689.56
Inspection Fees Allotment Improvement Fund	\$47,715.97
Contract	\$4,780.00
Storm Sewer Deposit	\$37,980.00
Tap in Fee	\$39,572.50
Pollution Cap. Improv. Fee	\$37,223.72
Water Pollution Control Interceptor Fees	\$15,413.46
Water - Capital Improvements	\$29,560.00
Water - New Main Frontage	\$1,835.72
Service Connection Taps	\$31,800.00
Meter Charge	\$13,080.00
Manifolds	\$1,059.58
Street Excavation	\$14,363.00
Water Works Inspection	\$3,570.00
Building Water	\$1,495.00
Total Collections	\$379,607.74

## EXHIBIT A

OPWC RD 29	Crehore St.	Root Rd.	Maple Dr.	Concrete, Pvmt repair, casting Adj, Curb Ramps	129639.84
OPWC RD 29	West. 18th St.	Reid Ave.	Lexington Ave.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	51044.96
OPWC RD 29	Livingston Ave.	West 18th Ave.	West 17th St.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	86682.18
OPWC RD 29	West 20th St.	Reid Ave.	Washington Ave.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	426668.7
OPWC RD 29	West 23rd St.	Reeves	Leavitt	Concrete, Pvmt repair, casting Adj, Curb Ramps	171672.9
OPWC RD 29	West 29th St.	Marshall	Carmelita Ct.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	194362.7
OPWC RD 29	Reeves Ave.	West 30th St.	Mark Dr.	Concrete, Pvmt repair, casting Adj, Curb Ramps	72507.01
OPWC RD 29	East 31th St.	Fulton Rd.	Globe Ave.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	420205.3
OPWC RD 29	Fulton Rd.	East 31st St.	East 28th St.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	304180.3
OPWC RD 29	Vassar Ave.	cambridge Ave.	Kenyon Ave.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	85937.23
OPWC RD 29	Kenyon Ave.	West 40th St.	Cul-de-Sac	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	179994.9
OPWC RD 29	Stanford Ave.	West 40th St.	Kenyon Ave.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	120377.7
OPWC RD 29	Miami Ave.	West 40th St.	West 37th St.	Mill/Fill, Pvmt repair, casting Adj, Curb Ramps	137505.1
				<b>TOTAL</b>	<b>\$ 2,380,778.82</b>