

ENGINEERING DEPARTMENT

2017 ANNUAL REPORT



City Engineer: Dale Vandersommen, P.E.

2/28/2018

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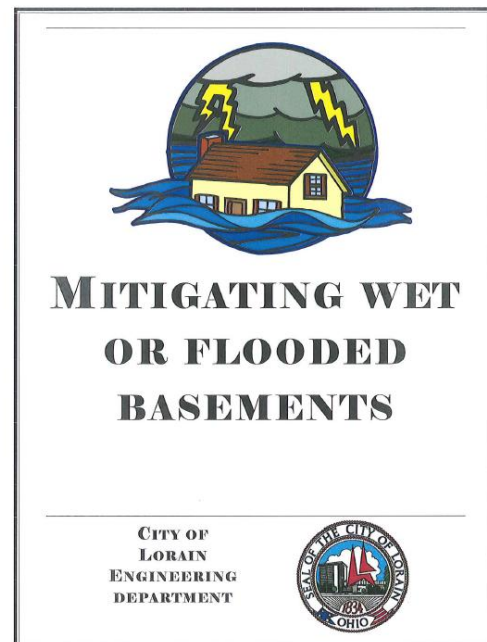
DEPARTMENT'S MISSION STATEMENT:

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 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
- Kathryn Golden, Storm Water Manager
- Doug Hasel, P.S., Engineer III
- Katie McGannon, Engineering Aide III
- Seth Schilling, Engineering Aide
- Veronica A Newsome, E.I., Engineer III
- Jessica Potter, Civil Engineer I
- Phil Turske, Contract Administrator
- Dale Vandersommen, P.E., City Engineer



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.

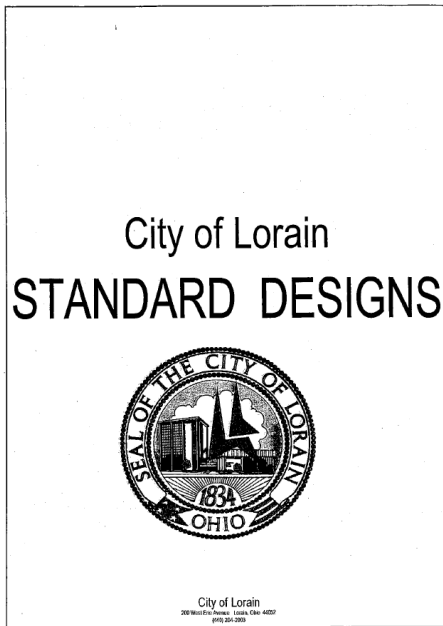
INVESTIGATIONS

Field investigations are carried out when the situation warrants it.

2017 Investigations include:

- 9 Drainage complaints, grading
- 8 Drainage complaints, alley, yard, downspout/underdrain
- 8 Sidewalk complaints
- 1 Right of Way Obstructions

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.

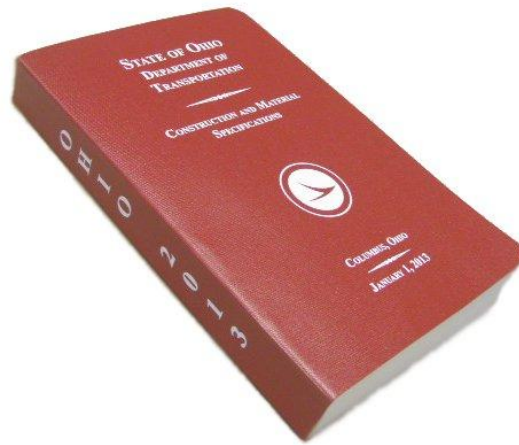
PROJECTS

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 2017.

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 2017 ODOT's Urban Paving program completed construction for one project in the City of Lorain. US Route 6, from Baumhart Road east to Root Road, was resurfaced as part of the Urban Paving Program in 2017.



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. See Exhibit B for a list of OWDA projects completed in 2017.

DIVISION OF ENVIRONMENTAL AND FINANCIAL ASSISTANCE (DEFA)

Through the Water Pollution Control Loan Fund (WPCLF), DEFA provides financial and technical assistance to public or private applicants for planning, design and construction of a wide variety of projects to protect or improve the quality of Ohio's water resources. Similarly, through the Water Supply Revolving Loan Account (WSRLA), DEFA assists applicants with projects that address human health and failing drinking water infrastructure needs.

See Exhibit C for a list of DEFA projects awarded funding in 2017.

MISCELLANEOUS PROJECT

CATCH BASIN REPAIR AND RECONSTRUCTION

The project involved the repair and reconstruction of various catch basins throughout the City of Lorain. The cost of the project was \$150,000.

UTILITIES DEPARTMENT RESURFACING OF PAVEMENT



The Engineering Department performed the planning, engineering, and construction inspection for the sidewalks of the Utilities Department Parking Lot. This was Phase 1 of the project. The cost of the project was \$93,578.00.

NARRAGANSETT BLVD

Narragansett Boulevard was rehabilitated from Edgewood Dr. to Ashland Avenue. This project was financed with Community Development

Block Grant funds. The total cost of the project was \$385,000.00.

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 2017. Surveys have also been done on active job sites that were constructed in 2017 to improve design and functionality of those jobs.

The following are some additional surveys:

UTILITIES

- Contract 6WC water line replacement Livingston Ave and W 18th Street.
- Water utilities parking lot for replacement.
- Waterline at the Clover Senior Center (North Pointe).
- Waterline location at the Village at Lighthouse.
- Sanitary facilities on SR 58 from Cooper Foster to Jaeger Road.
- West side water transmission line.
- Oaknoll lift station easement.
- GPS waterline, sanitary and storm water facilities used to update Lorain City GIS records.
- Locate right of way Broadway @ W. 25th St. west side for water dept.
- Survey utility easement from SR 58 to North Pointe.

UTILITIES (CONT.)

- Waterline easement (RTI) E. 28th north to Access Drive.
- Baldwin Blvd Drainage.

STREET DEPARTMENT

- Oakwood Park drainage.
- W. 37th west of Broadway to correct drainage issue.
- Utica Ave. south of W. 21st to correct drainage issue.
- Site plan for Iowa Ave. Impound Lot

SAFETY/SERVICE DIRECTOR

- Lot split of city parcel 3728 Colorado Ave.
- Prepare lot split for Tax Department Office.
- Chain of title property currently Campana Park
- Oakwood Park drainage.
- Research (Grandview Subdivision for proposed fire station.
- Survey right of way, W. 14th St e/o King Ave. (encroachment).
- Prepare delinquency maps for GIS.

GRADING APPROVALS

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

- Preliminary Grade Approvals: 86
- Certified Grade Approvals: 62

PLAT REVIEW

The following plat reviews were performed by our Professional Surveyor:

- Gardens @ Morningside #3
- Landings @ Martins Run #3
- The Villas @ Morningside

LOT SPLITS REVIEWED

- Broadway Ave. @ W. 10th St.
- Clinton Ave @ city limits
- Colorado Ave. @ city limits
- Colorado Ave @ Root Rd.
- E. 28th @ Fulton Ave.
- Oberlin Ave. @ Tower Blvd.
- Washington Ave. @ W. 4th.
- Sunset Ave. @ Riverbend Dr.

LOT SPLITS PREPARED

- Washington Ave. @ W. 4th St
- Colorado @ Root Rd (update)

EASEMENTS REVIEWED

- Prepare storm easement Colorado Ave @ Root. Rd

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 2017 the Engineering Department performed the following inspections:



CONCRETE - INSPECTION

- Sidewalk – 338
- Apron - 199
- Handicap Ramps – 2
- Curb And Gutter – 17
- Sidewalk Evaluations – 7
- Open Pavement – 126
- Catch Basin – 8

STORM SEWER AND SANITARY SEWER - INSPECTION

- Sanitary – 141
- Storm – 92
- Inlet – 8



SUBDIVISIONS - INSPECTION

- Deefield Estates No. 6 and The Landings at Martin's Run Subdivison No. 2

PROJECTS - INSPECTION

- Narragansett Blvd
- Lexington Ave. waterline
- 18th St. - waterline
- OPWC 31 A
- OPWC 31 B
- OPWC 31 C

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. This year the inspectors rated 205 segments of roadway which is 93,712.8 feet (17.75) miles.

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.

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

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.



ASTM TESTING PERFORMED

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

CONTRACT MANAGEMENT

GRANTS

2017 LORAIN COUNTY SOLID WASTE GRANT

- \$9,363.00
 - Recycled goal posts and aluminum bleachers for Johnnie Wilson Park
 - Recycled Paper

CONTRACTS

CONTRACTS

- Shared Savings Agreement with Gardiner for HVAC
- Nuisance Motel Demolitions
- 2017 BHP Grass Cutting
- Tall Grass Cutting South
- Tall Grass Cutting North
- 2017 Repair of Catch Basins
- Hopkins Locke Head Start Building Roof Repair
- OPWC Round 31 Contract A
- OPWC Round 31 Contract B
- OPWC Round 31 Contract C
- Narragansett Boulevard Roadway Rehabilitation
- West 37th Street Rehabilitation
- Utilities Backwash Tank Rehab Project
- Parking Lot Improvements to the Lorain Utilities Building
- AOC Remediation: Fish Shelves and Bulkhead Replacement
- Purchase of Distribution Materials
- Purification Sludge Hauling
- Purchase of Chemicals
- Purchase of Street Materials

AGREEMENTS

- Professional Legal Services
- Employee Vision and Dental Benefits 2017
- Professional Legal Services
- Professional Services Related to the West Water Line Improvements
- Black River Bar Screen install
- Open-end Lease for 2017 Escape
- Professional Legal Services Lorain Development Corp
- Professional Legal Services Community Reinvestment Housing Council

- Professional Legal Services Demolition Board of Appeals
- Purchase of Civil HR Software Subscription for 5 Years
- Inspection services related to the Gardens at Morningside Subdivision
- Black River WWTP Valve and Meter Replacement
- 2017 General Engineering Services
- Roof Repair at 309 West 5th Street (Moore House)
- Inspection services related to the Landings 3 Subdivision
- Kolbe Road Assessment Project
- Professional Legal Services Sanitary Sewer Contract Dispute
- Inspection services related to the Cornerstone Farms Subdivision
- Facility need assessment and site selection study
- Demolition of Hot Wates
- City of Lorain Water Supply Master Plan
- Purchase of continued maintenance for LPD Scheduling and Payroll
- Employee Vision and Dental Benefits 2018

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 General – East 28th St.
- Giovanni's Pizza – Grove Avenue
- Multi-Tenant Retail – Leavitt Road
- USS Substation
- Camaco
- Burger King – Cooper Foster Park Rd.
- Charleston Substation

RESIDENTIAL AND COMMERCIAL PLAN REVIEW (CONT.)

- Clover Communities Senior Living – North Pointe Pkwy
- First Energy Plan Station
- First Evangelical Lutheran Church

SUBDIVISION

- Gardens at Morningside Subdivision No. 4
- Landings at Martin's Run Subdivision No. 3
- Cornerstone Farms Subdivision No. 1

WATERLINE REPLACEMENT

- Contract 6WC water line replacement Livingston Ave and W 18th Street.

RESIDENTIAL ADDRESS ASSIGNMENTS

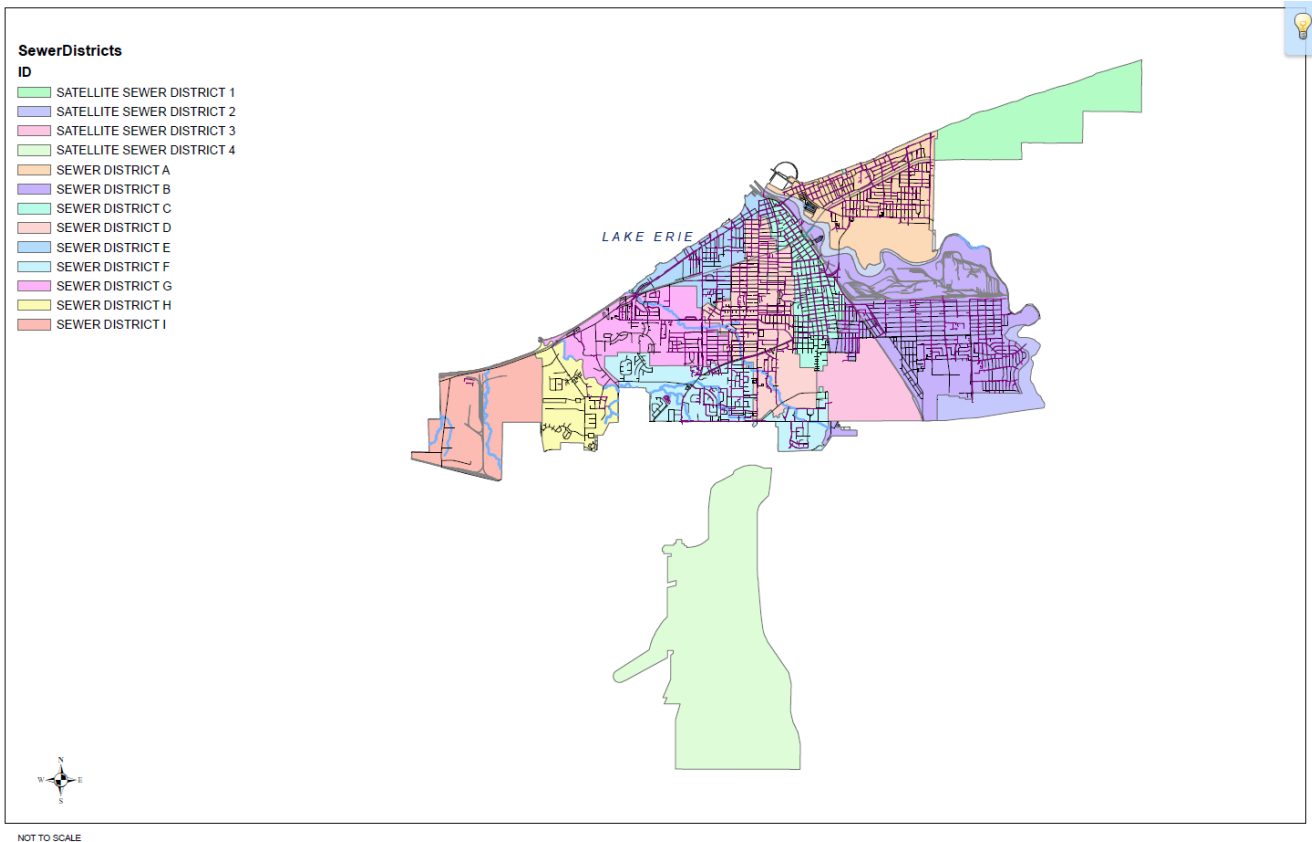
GARDENS AT MORNINGSIDE SUBDIVISION NO. 3

Landings at Martin's Run subdivision- no. 3

MEADOWS AT MARTIN'S RUN
SUBDIVISION NO. 1



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.)
- Maps showing City GIS points
- 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

MAPPING (CONT.)

- Maps for other city entities; walking tour maps for the Community Reinvestment Area maps for Community Development
- Bridge Culvert maps
- LMI Maps
- CDBG Area maps
- ZCA maps for Zoning Changes
- Fire Station radius maps
- Maps for various petitions (paving, assessment, vacations)
- Outfall Maps
- MS4 Map
- Unimproved Street Maps showing Pavement Rating Map
- Maps of vacated streets/alleys
- Watershed maps
- Sewer Cleaning Areas map
- Police District maps
- Zoning maps
- Miscellaneous maps upon request for various city departments and outside entities

STORM WATER MANAGEMENT

- Performed 496 storm water inspections on 195 sites within the City.
- Performed quarterly site inspections of the following City properties: Compost Facility Street Department Complex, and Sewer Department Complexes.
- Implementation of the City of Lorain Stormwater Management Program, as required by Ohio EPA Permit #OHQ000003.
- Provided storm water training to employees in the following departments/divisions: Sewer, Landscaping, Water Distribution, and Public Properties.
- Administered the Long Term Operation and Maintenance standards for all existing post-construction BMPs. Landowners 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.
- Hosted the 2017 Kayak-a-Thon to raise awareness on water quality work being performed by the City.
- Continued implementation of the Martin's Run Drainage Improvement Plan Phase 2, a project aimed at identifying and assessing a location for approximately 100 acre/feet of upstream storage to reduce downstream peak flows.

ENVIRONMENTAL RESTORATION PROGRAM

- Grant management and restoration projects active in 2017 include:
 - Received \$60,000 in funding for the implementation of the Martin's Run Ecological Restoration Project. The project will investigate the possibility of installing a wetland complex south of Cooper Foster just west of Broadway with the goal of reducing peak flows in Martin's Run. The funding provides 50% of the assessment cost, with the remaining 50% to be funded from the Storm Fund.
 - Black River Concern Remediation and Restoration Program-Award \$15,184,138.00. The funding has provided for the following 2017 activities:
 1. The installation of a groundwater treatment system to address contaminate entry into the Black River.
 2. The installation of new sheet pile and fish shelf at River Mile 0.3, located at City property leased to the Lorain Sailing and Yacht Club.
 3. The assessment of the hydrology at the Lorain Black River Reclamation Facility and its affect on the Black River. The design and installation of systems to address the results of the assessment will begin in 2018 following completion of the assessment.

LORAIN BLACK RIVER RECLAMATION FACILITY

- Onsite staff oversaw the processing of 2750 ton of reclaimed steel mill byproduct material by the City's contracted Facility Manager. The 2017 Reclamation effort generated approximately \$101,166.49 in revenue for the City of Lorain.
- Onsite staff worked to manage and produce leaf humus, topsoil, and mulch. These efforts generated approximately \$6,000 in additional revenue for the City of Lorain.

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 2017

- Apron and Sidewalk – 279
- Sanitary and Storm– 273
- Open Pavement - 63

FINANCES

2017 Engineering Collections

Sewer Permits	\$21,840.00
Miscellaneous Sales	\$14.59
Parkland Trust Fund	\$41,930.00
Sewer License Fees	\$1,290.00
Deposit Held Trust Fund	\$57,508.00
Reimburse Engineering Service	\$23,689.56
Inspection Fees Allotment Improvement Fund	\$107,940.36
Contract	\$5,380.00
Storm Sewer Deposit	\$160,200.00
Tap in Fee	\$140,181.52
Pollution Cap. Improv. Fee	\$109,207.62
Water Pollution Control Interceptor Fees	\$9,027.33
Water - Capital Improvements	\$103,516.22
Water - New Main Frontage	\$0.00
Service Connection Taps	\$107,502.81
Meter Charge	\$46,139.50
Manifolds	\$500.00
Street Excavation	\$0.00
Water Works Inspection & Building Water	\$19,423.50
Total Collections	\$955,291.01

EXHIBIT A

2017 OPWC WORK PERFORMED						
Contract #	Street	From	To	Scope	Funding Source	Cost
OPWC RD 31	Globe Ave.	E. 32nd St.	E. 36th St.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 193,333.00
OPWC RD 31	Collins Dr.	Meister Rd.	640' west	Concrete Rehabilitation	OPWC/SIB	\$ 133,000.00
OPWC RD 31	Reid Ave.	W. 32nd St.	W. 28th St.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 200,000.00
OPWC RD 31	Iowa Ave.	E St.	F St.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 95,533.00
OPWC RD 31	Highland Park Blvd.	Oberlin Ave.	Park Dr.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 398,750.00
OPWC RD 31	W. 31st St.	Lexington Ave.	Reid Ave.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 79,800.00
OPWC RD 31	Fairless Dr.	Tacoma Ave.	Camden Ave.	Concrete Rehabilitation	OPWC/SIB	\$ 328,387.50
OPWC RD 31	W. 11th St.	Oberlin Ave.	Washington Ave.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 231,111.00
OPWC RD 31	Oakhill Blvd.	Yorktown Rd.	Oak Point Rd.	Concrete Rehabilitation	OPWC/SIB	\$ 402,664.50
OPWC RD 31	Gregus Ave.	E. 41st St.	Homewood Dr.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 180,600.00
OPWC RD 31	E. 41st St.	Gregus Ave.	Palm Ave.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 227,850.00
OPWC RD 31	Oakdale Ave.	South Terminus	W. 17th St.	Mill/Fill asph, Pvmt repair, Casting Adj, Curb Ramps	OPWC/SIB	\$ 120,500.00
						\$ 2,591,529.00

EXHIBIT B

CITY OF LORAIN, OHIO			
WATERLINE REPLACEMENT EVALUATION SUMMARY			
3/13/2018			
Road	Limits	Lengths (ft.)	Cost
W 18th Street	Garden Rd to Broadway	1550	
Lexington Ave	W 17th to W 21st St	1600	
			\$ 765,344.00

EXHIBIT C

2017 DEFA LOAN AWARDS			
Source	Project	Loan Type	Cost
WSRLA	Red Hill Water Main Improvements	Design	\$ 561,000.00
WSRLA	South Lorain Phase 3 Water main Improvements	Construction	\$ 3,888,800.00
WSRLA	Water Treatment Plant Improvements	Planning	\$ 506,750.00
WPCLF	Black River WWTP Bar Screen	Construction	\$ 1,000,000.00