

# OUR JOURNEY TOWARDS SUSTAINABILITY



*Dear Community,*

It is with great pleasure that I share the Northeast Ohio Regional Sewer District's first publication outlining our sustainability progress. In 2017, the District launched a formal sustainability program to build upon its environmentally friendly and efficient practices. In 2018, the District's adopted a 3-year strategic plan which includes the following sustainability related goals:

- Improve resource management to reduce the costs and environmental footprint of District operations including waste, purchased supplies and utilities.
- Use green infrastructure to strategically address resiliency including workforce opportunities, improving tree canopy, and access to green space across the service area.
- Enhance the culture of sustainability within the District

The District recognizes that environmental stewardship is embedded in our core responsibilities to treat wastewater and manage stormwater for the region. At the same time, we must plan for long-term environmental, financial, and social impacts—including climate change—as we strategically position our utility for the future.

This report is intended for the communities we serve, our staff, and other interested stakeholders. It contains overarching sustainability objectives, highlights recent progress, and provides a baseline of important metrics that will inform future comprehensive sustainability planning.

This publication is an initial communication that defines the focus and goals of our sustainability program. It is a platform to share our baseline metrics in energy, waste, transportation, and greenhouse gas emissions. It is a way to begin creating the accountability necessary for the development of a sound sustainability program. Our next step will be to launch a comprehensive sustainability and climate plan for the District.

Sincerely,



Jenita McGowan-Warner  
Sustainability Program Manager

## INTRODUCTION



*Figure 1* Kyle Wilson, Mike Fortesque, and Sonny Maistros from our Southerly Wastewater Treatment Plant

FOR THE PAST 45 YEARS, the Sewer District has provided wastewater and stormwater management services to the City of Cleveland and 61 other member communities across the Rocky, Cuyahoga, Lake Erie Direct Tributaries, and Chagrin River watersheds.

As the largest wastewater treatment provider in the State of Ohio, the Sewer District spans 380 square miles, and treats 90 billion gallons of wastewater a year. In addition to its award-winning treatment plant and laboratory performance, the [Project Clean Lake](#) construction program will reduce annual Lake Erie pollution by 4 billion gallons by 2036, while the Regional Stormwater Management Program addresses widespread inter-community problems like flooding and erosion.

The Northeast Ohio Regional Sewer District's mission is linked to the natural environment. At the same time, District operations impact service area communities and the broader region. Integrating sustainability enterprise-wide is critical to our role as a public utility, active stewards of the environment, and as a financially responsible organization.

In 2017, the District started a formal sustainability program with the following objectives:

**Be an efficient and financially responsible user of natural and material resources:** The District will responsibly use material resources including energy, supplies, and other inputs, and seek to reduce, re-use, and recycle to lessen our contributions to landfill in our operations and construction practices.

**Be a socially responsible utility:** Consider the well-being of the environment, communities, and staff when carrying out operations, policies and practices and seek to align equitable outcomes with core business opportunities resulting in positive impact to member communities.

**Protect and enhance the natural environment:** The District will measure and mitigate its impacts and embed environmental protection into daily operations; acting to meet long-term environmental challenges, including climate change.

## Greenhouse Gas Emissions and Climate Action

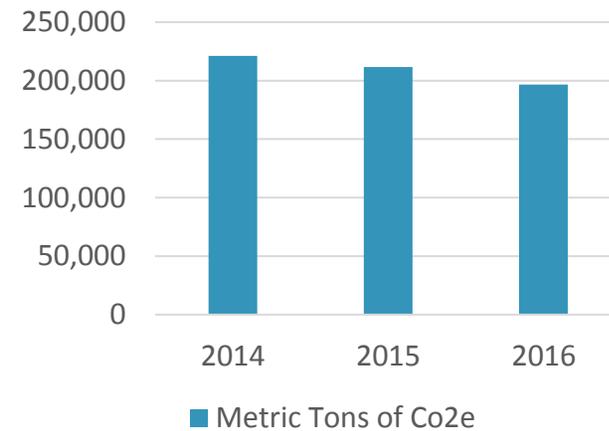
The District is working to reduce its carbon footprint as it continues to develop an understanding of the implications of the changing climate in Northeast Ohio, the Great Lakes Region, and across the globe. In Northeast Ohio, climate change means warmer average temperatures, more precipitation in general, and more instances of extreme precipitation.<sup>i</sup> The District is working to reduce greenhouse emissions while at the same time planning for predicted climate impacts.

In 2018, the District conducted a comprehensive carbon footprint. The three-year baseline (2014, 2015, and 2016) shows an 11% reduction in greenhouse gas emissions. Most of the decrease can be attributed to reduced natural gas combustion from the Renewable Energy Facility that went online in mid-2014 replacing multiple hearth incinerators with fluidized bed incinerators.

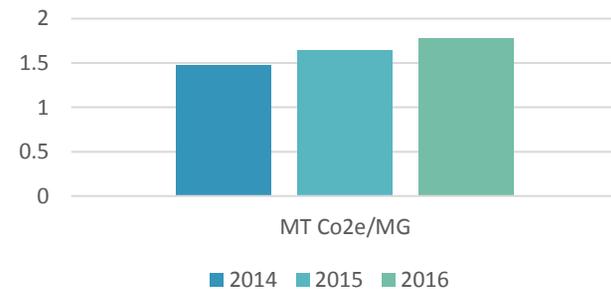
### *Greenhouse Gas Intensity*

A critical metric is the greenhouse gas intensity of the District's operations measured by metric tons of carbon dioxide equivalent per million gallons of wastewater treated. This is an important consideration because the volume of wastewater and stormwater cleaned at our treatment plants varies each year. The Intensity measure helps compare the efficiency of our operations year-to-year. During the baseline years, 2014-2016 the greenhouse gas intensity of District operations increased slightly. A reduction in intensity is anticipated for future years based on planned operational efficiency projects.

### Greenhouse Gas Emissions

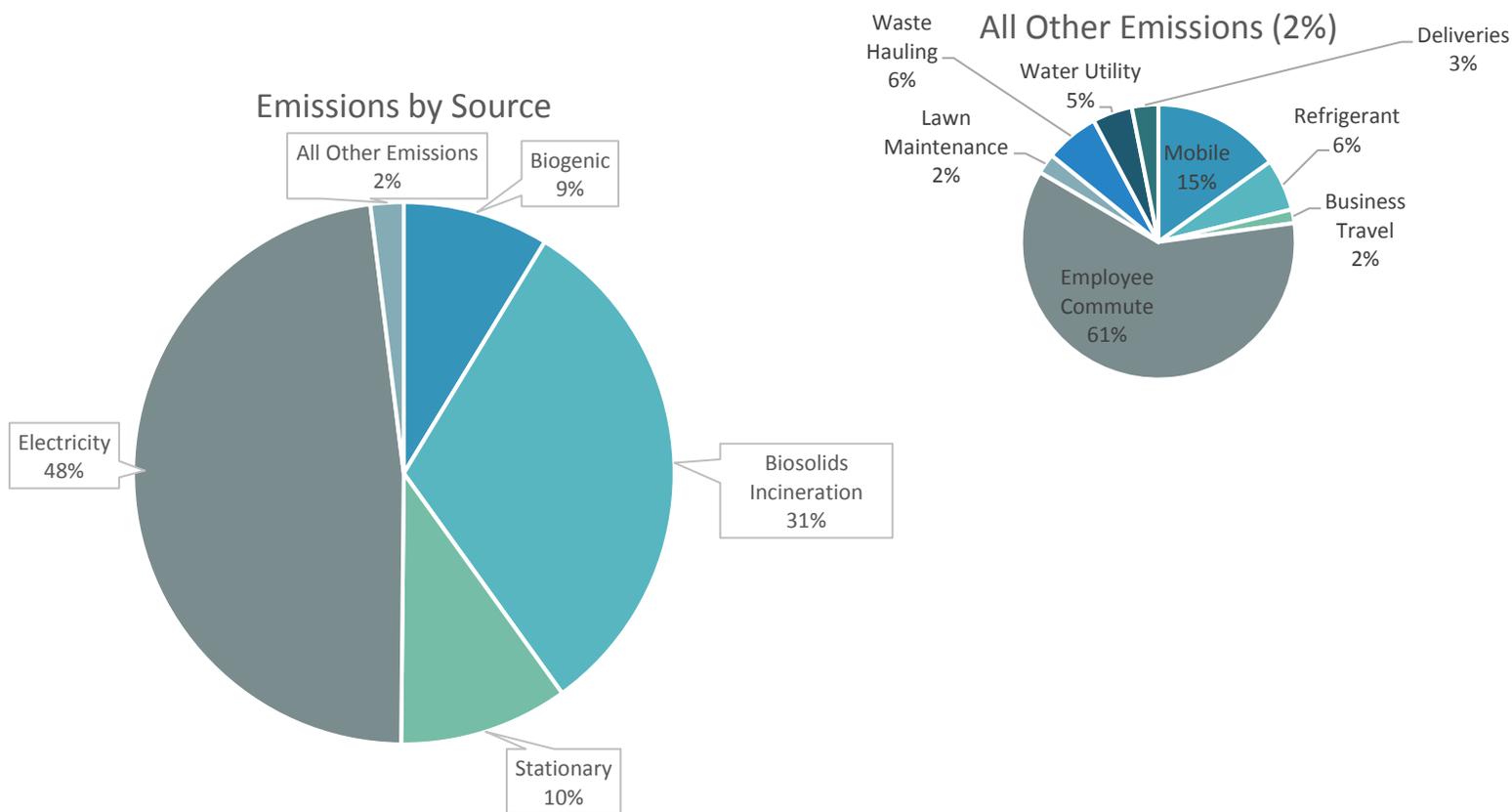


### Greenhouse Gas Intensity



### Emissions by Source

Ninety-eight percent of the District's emissions come from four sources: purchased electricity, biosolids incineration, stationary combustion (primarily natural gas), and biogenic emissions. Biogenic emissions are greenhouse gases from the biological processes used in wastewater treatment to remove organic materials. The other 2% of emissions are primarily employee commute and mobile emissions from District's fleet.



### *Climate Leadership*

The District supports climate action by aligning its work with and participating in several local and regional climate mitigation and adaptation initiatives including:

- The Great Lakes Climate Adaptation Network
- Trust for Public Land Climate Smart Cities Cleveland Project
- City of Cleveland Climate Action Plan
- Cuyahoga County Climate Change Action Plan
- Cleveland Urban Opportunities and Resilience Program
- Cleveland Climate Action Fund



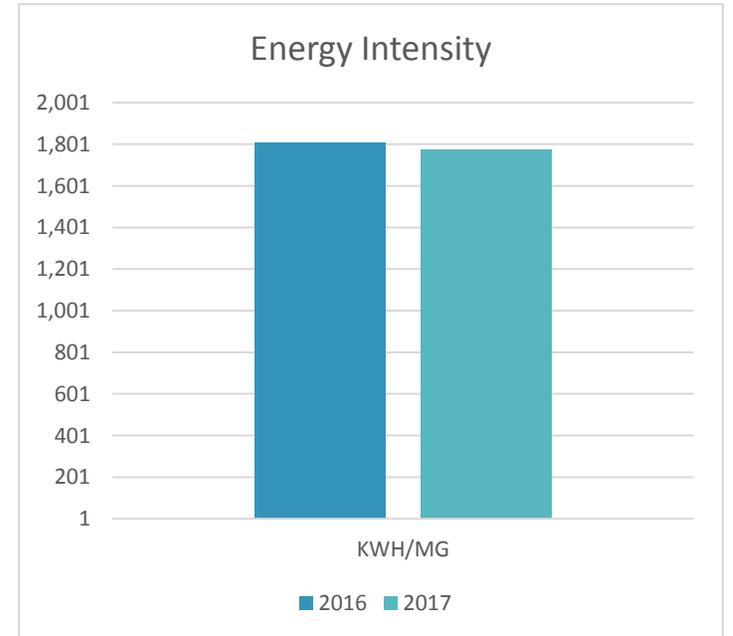
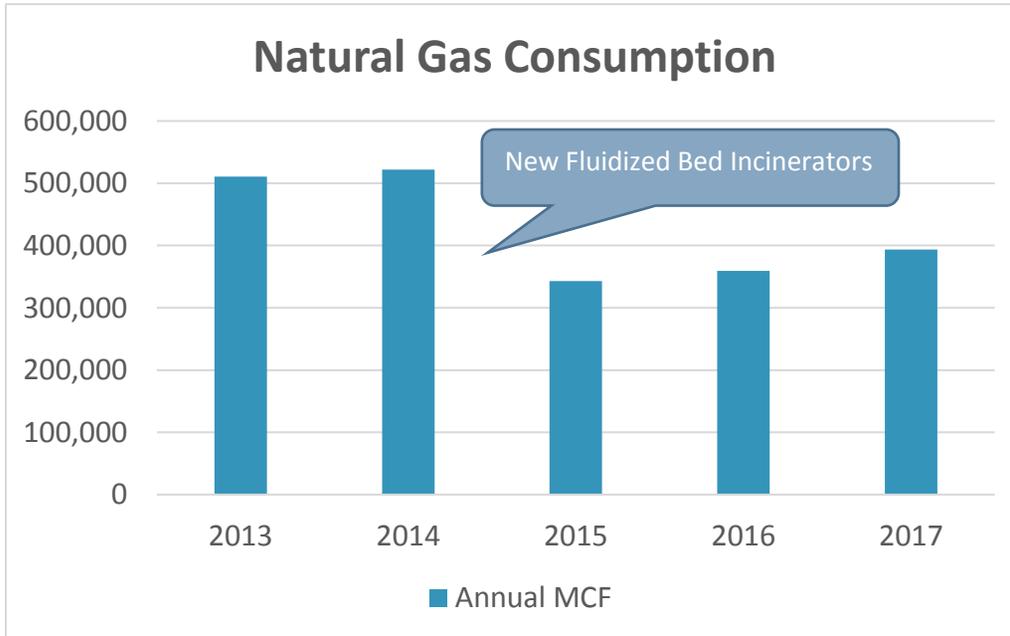
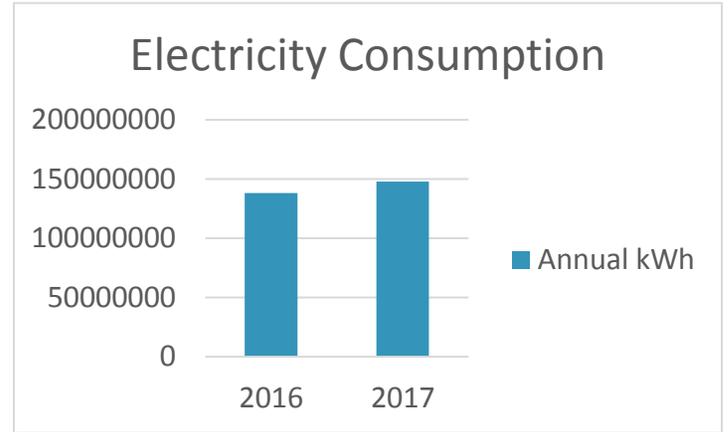
*Figure 1* District Community Relations Specialist, Ebony Hood, at a Cleveland Climate Action Plan Neighborhood Workshop

### **Future Focus: Climate and Sustainability Plan**

The District will use its emissions baseline to inform the creation of a sustainability plan with the goals of carbon reduction, cost savings, efficiency, and resilience for the District and the community.

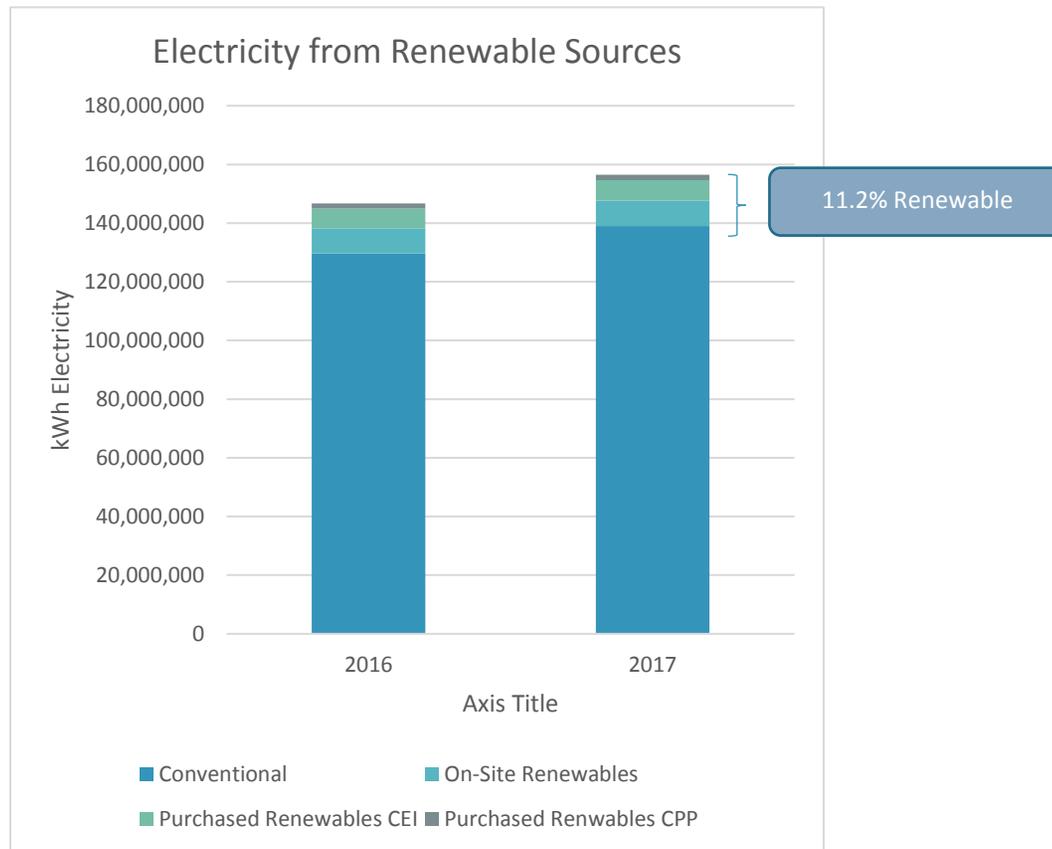
# ENERGY

The District has been working to improve energy management across its five locations and eleven pump stations and has implemented an Energy Data Management System to baseline its energy use, create regular energy reports, and track improvements in efficiency. Total electricity and natural gas use has increased slightly since 2016, but the energy intensity of the District's operations has improved over that same time. The consumption increase can be attributed increased wastewater flow and to new pump stations in the collections system.



### Renewable Energy Use

11% of Electricity Demand is met by renewable energy resources, both generated on-site at the Renewable Energy Facility and through purchased electricity sourced from hydro, wind, solar and landfill gas.



### *Sustainable Wastewater Infrastructure of the Future Accelerator*

The District participates in the US Department of Energy's [Sustainable Wastewater Infrastructure of the Future Accelerator](#). The Accelerator aims to catalyze the adoption of innovative and best-practice approaches in data management, technologies, and financing for infrastructure improvement. Partners seek to improve the energy efficiency of their participating water resource recovery facilities by at least 30% and to integrate at least one resource recovery measure.

### *Energy Improvements at Southerly Wastewater Treatment Plant*

Situated on 288 acres, Southerly is the largest of the District's three wastewater plants, and one of the largest facilities of its kind in the country. Southerly has an average flow of 120 million gallons per day and has a capacity to treat 735 million gallons per day during wet weather.



*Figure 2 Southerly Wastewater Treatment Plant at night, lit by new LED exterior lighting*

#### LED Lighting at Southerly

Between 2014-2017, Southerly Wastewater Treatment Plant implemented \$4 million in interior, exterior, and tunnel lighting retrofits replacing less efficient lights with LED lighting and occupancy sensors. The retrofits resulted in approximately 3% reduction in electricity use which is about \$300,000 in avoided costs annually. The project also enabled the District to participate in First Energy's Demand Side Energy Efficiency program resulting in anticipated additional cost avoidance of \$450,000.

#### Renewable Energy Facility

In 2014 the Renewable Energy Facility (REF) at Southerly Wastewater Treatment Plant became operational. The REF replaced 45-year-old multiple hearth incinerators with new fluidized bed incinerators, and a steam turbine generating electricity from waste heat. The REF produces about 8,600 MWh of renewable energy each year, saving the district more than half a million dollars annually in electricity costs.

#### Aeration Improvements

Southerly Wastewater Treatment Plant's First Stage Aeration blowers account for more than 10% of the plants energy use. Improvements resulted in a reduction to 3 blowers from 4, valve replacements and a digitally-controlled system which will lower energy consumption by approximately 3,100,000 kWh per year saving the District approximately \$200,000 a year.

### *Energy Improvements at the Environmental & Maintenance Services Center (EMSC)*

The Environmental and Maintenance Services Center (EMSC) houses the District's Analytical Services, Sewer System Maintenance & Operations, Water Quality and Industrial Surveillance, Inventory Control, Building Maintenance, and Fleet Services departments. The District finished the EMSC Energy Conservation Project in 2017 which included laboratory upgrades, air handling unit replacements, conversion to natural gas boilers, automation and controls, and interior and exterior lighting retrofits and occupancy sensors. In its first year of operation, the project saved 2,934,958 kWh in electricity and 656 MCF of natural gas resulting in more than \$300,000 in annual energy cost reductions. The project has an anticipated total savings of \$2.9 million over 15 years.

### Future Focus: Energy Efficiency

The District will proceed with energy efficiency projects at 5 buildings at three Wastewater Treatment Plants and the George J. McMonagle Administration building in Midtown Cleveland.

## MATERIALS MANAGEMENT

The District aims to be an efficient and financially responsible user of natural and material resources during our day-to-day operations and during construction and capital projects. Materials management includes waste disposal, recycling, reuse, salvage, local and sustainable procurement of goods and services as well as reducing the footprint of construction activities.

### *Beneficial Reuse of Biosolid Incinerator Ash*

The District is responsible for removing, processing, and disposing of the solids found in wastewater which is the largest waste stream for the utility. In spring 2018, the District began a partnership with Kurtz Brothers to beneficially reuse the Biosolid Incinerator Ash from Southerly and Westerly Wastewater Treatment Plants. Instead of landfilling the ash, the material will be used as a soil amendment. The project will reduce the cost, environmental footprint, and carbon emissions of ash management. The project is estimated to reduce landfilled waste by 32,000 tons per year—about a 75% reduction in landfilled waste from our 2016 waste baseline.

### *Envision Sustainability Rating System*

Envision is a sustainable infrastructure rating system from the Institute for Sustainable Infrastructure (ISI). The purpose of Envision is to foster improvement in the sustainable performance and resiliency of infrastructure. The District's operations and capital improvements, including [Project Clean Lake](#), can have an environmental impact during construction and after construction when operational. The District is piloting using the Envision Sustainable Infrastructure Rating System for a stormwater construction project and a Project Clean Lake capital project.

## Waste Landfilled



**Figure 3** Ash Lagoon at Southerly Wastewater Treatment Plant. The Beneficial reuse program will result in diverting nearly all biosolid incinerator ash from landfill.

In November 2017, The District was awarded Envision Silver Certification for Southerly Wastewater Treatment Plant. Key sustainable accomplishments that contributed to the Plant earning an Envision Silver award include:

- ***Economic Growth and Development:*** Training, education, tuition assistance, and hiring programs
- ***Development of Local Skills and Capabilities:*** Education and Outreach efforts, including wastewater treatment tours, Open House, SewerU and other educational opportunities
- ***Long-Term Monitoring and Maintenance:*** Southerly has a well-established history of the plant undergoing upgrades and rehabilitations over time to continue to meet the needs of the growing community it serves, as well as to continue to comply with stricter water treatment standards.
- ***Energy Reduction:*** The Renewable Energy Facility at Southerly and its reduction in natural gas and electricity

### *Sustainable Purchasing*

The District has joined the Sustainable Purchasing Leadership Council and has begun a review of its procurement specifications and has made some improvements to its snow removal and salt specifications, its contracted landscape services, and right-sized its waste and recycling services.

### **Future Focus: Materials Management**

Improvements in workplace recycling infrastructure, signage, and employee education around proper recycling, improving landscape maintenance, and a review of our cleaning and janitorial specifications.

## ENHANCING A CULTURE OF SUSTAINABILITY

A focus on the culture of sustainability within the District, helps employees become more innovative, efficient, and engaged at work. Building awareness and knowledge of sustainability empowers staff at work and in the community to be active stewards of the environment.

### *Sustainability Employee Resource Group*

The District formed the Sustainability Employee Resource Group (SERG) focused on sustainability in 2018. The mission of SERG is to educate, activate, and collaborate on achieving sustainability at home, at work and in the community. The group will do this by:

- Being active stewards of the environment. making decisions that achieve economic, environmental, and social benefits.
- Using a whole systems mindset and taking into consideration the full water cycle, infrastructure systems, watershed-scale thinking, and how the system impacts communities
- Inclusive collaborations and partnerships with many stakeholders

The SERG is open to any District employee and there are currently 25 active participants who are becoming knowledgeable about and participating in sustainability. The goal is to increase the likelihood of developing programs that will help to save the district money while reducing our operating footprint.



*Figure 4* District staff and public learn about the Cuyahoga County Solar Cooperative during a Lunch & Learn

### *Sustainability Lunch and Learns*

The District offers lunchtime workshops open to staff and the public focused on sustainability at home and at work. Topics have included bicycle safety, repair, and commuting, using public transportation, residential solar energy, recycling properly, and tree stewardship. Future topics will include green cleaning and planning a sustainable holiday season.

### Employee Transportation

A 2017 Employer commuter survey showed that 95% of District employees commute alone, however there was significant interest in incorporating carpooling, biking and public transit into commutes and travel for work. Clean transportation helps to reduce pollution, greenhouse gas emissions, costs incurred by the District, and active transportation can improve the health and wellness of District staff.

#### Gohio Commute

The District was one of the first Northeast Ohio employers to create a network site on Ohio's transportation demand management platform, Gohio Commute. District employees can use the platform to coordinate carpools, track mileage and emissions from driving, carpooling, vanpool, cycling or transit and to receive a wellness incentive for cycling to work.



A Smarter Way

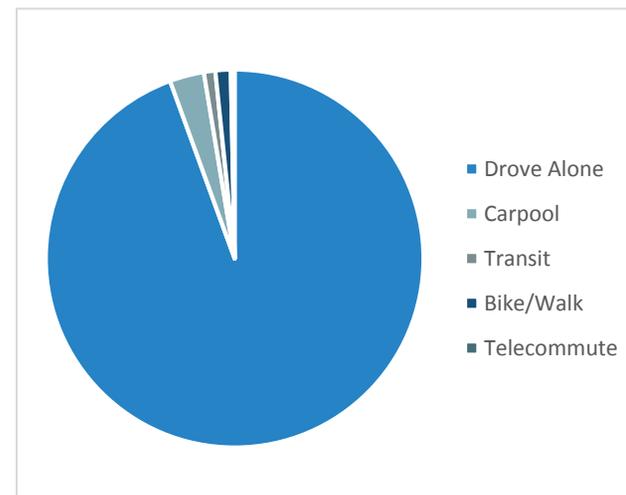


Figure 5 Figure 5 2017 NEORSD Commuter Survey: How do you typically commute to work



*Figure 6 EMSC and Southerly Employees “Bike to Lunch” along the Towpath Trail*

### Bicycle Friendly Workplace

In August 2017, the League of American Cyclists awarded the District a Gold Level Bicycle Friendly Business award. The District is the only gold level awardee in Northeast Ohio, and one of nine statewide. The Bike Friendly program included:

- A Green Your Ride program with a series of employee workshops on bike safety, commuting and route planning during National Bike Month,
- Its first-ever bicycle tours during its annual Open House,
- Capital investments in cycling, pedestrian, and transit-waiting environment infrastructure as part of its wastewater and stormwater infrastructure,
- Inclusion of Bike-to-Work in the District’s Wellness Program,
- Participation in the National Bike Challenge,
- Bike-to-Lunch,
- Bike parking improvements and the installation of Bicycle Fix-it-Stations.
- Bicycle Friendly Driver Workshop focused on motorists learning how to interact with cyclists



*Figure 7 GJM Employees participate in an RTA Ready-to-Ride Workshop.*

#### RTA Ready to Ride

Forty-Four District employees participated in the RTA Ready to Ride program including workshops, trip planning and a week's worth of free transit passes to try commuting by transit. In 2018, the District launched an RTA bus pass pilot for employees who work at its GJM building on Euclid Ave to use for District meetings downtown and in University Circle. During the pilot phase, an average of 15 bus trips per month have been taken for work-related meetings, saving the district money resulting in lower emissions from employee travel.

#### Future Focus: Transportation

The District will collaborate with Bike Cleveland and the Ohio City Bike Co-op on additional wastewater and green infrastructure social bike rides open to employees and the public.

## COMMUNITY, HEALTH, AND RESILIENCE

As a socially responsible utility, the District considers the well-being of the environment, communities, and staff when carrying out operations. Social Responsibility for the District means active leadership in promoting and organizing improvements to community and watershed health internally and with community partners. The utility will do this by engaging partners and involving stakeholders in the decisions that will affect them and by promoting the appreciation of the true value of the wastewater and stormwater services the District provides.

Our policies and practices create positive impact in the communities we serve, paying special attention to opportunities that align equitable outcomes with our core business activities. We have several initiatives that improve our environment, create new business opportunities, and help our member communities to thrive.

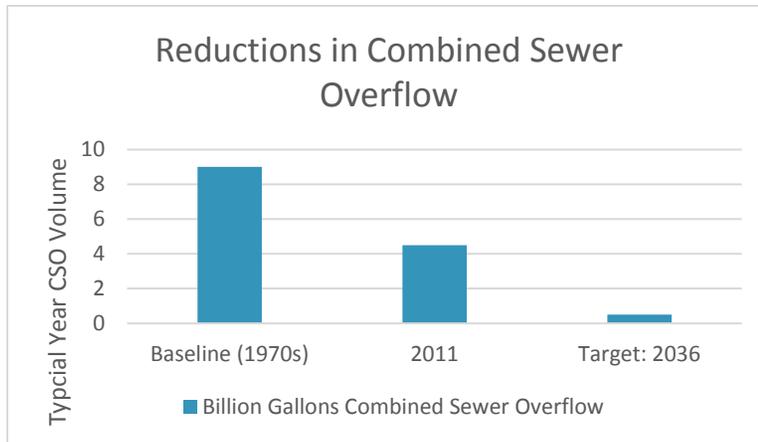
### *Leveraging Infrastructure to Enhance Community Sustainability*

The District engages with strategic partners to maximize the benefits provided by infrastructure investments, including opportunities to expand urban natural areas, enhance air quality and improve quality of life in Northeast Ohio.



**Figure 8** The District will turn a street into a pedestrian only zone, increasing walkability in a Shaker Heights park as part of the Regional Stormwater Management Program.

## Project Clean Lake



### Combined Sewer Overflows (CSOs)

*When heavy storms produce large volumes of surface runoff, combined sewers may not be able to handle the increase. Relief points were designed in the system to release the combined flow to local waterways. Those points are called combined sewer overflows, or CSOs.*

Project Clean Lake is a 25-year program that will reduce pollution in Lake Erie by 4 billion gallons per year. A combination of large tunnels, treatment plant improvements and expansion, and green infrastructure is reducing the volume of combined sewer overflow discharging to the environment. The District will construct seven tunnels, ranging from two to five miles in length, up to 300 feet deep and up to 24 feet in diameter. All three wastewater treatment plants are increasing treatment capacities to treat this additional flow.



Figure 9 Dugway Storage Tunnel under construction

A new partnership between the District, Trust for Public Land and LAND Studio will help to enhance greenspace, connectivity, and public art of several Project Clean Lake construction site restorations. The first such example is the enhancements to the Buckeye Road Green Infrastructure project. The partners engaged local artists to design public art to accompany the stormwater detention basins, adding a local touch to the new green space.



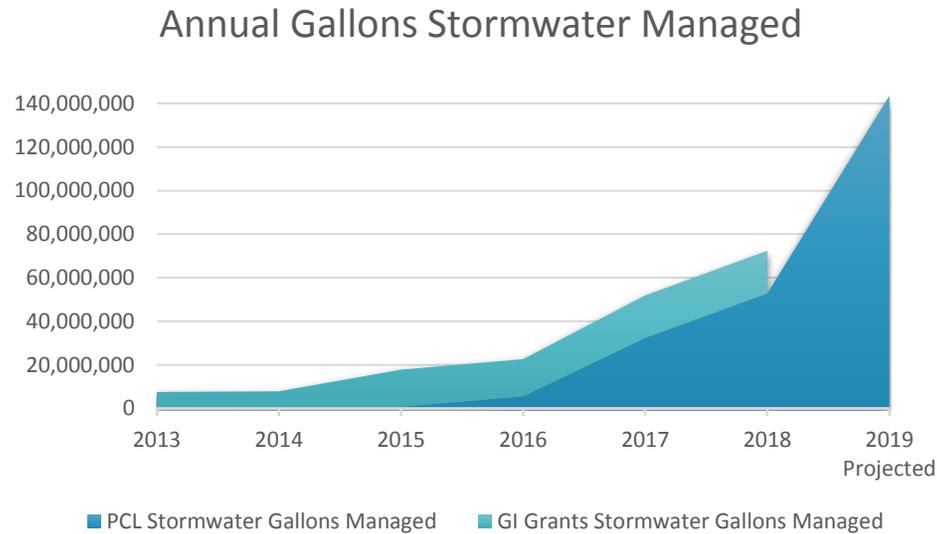
Figure 10 Buckeye Road Green Infrastructure Project

### Green Infrastructure

Since 2005, the District has invested significantly in green infrastructure projects to reduce the strain on our combined system and reduce flooding, erosion and improve water quality.

Green infrastructure projects vary in size and purpose and include large-scale Project Clean Lake Green Infrastructure designed to reduce combined sewer overflows and projects implemented by other organizations funded by the green infrastructure grant program. The District has completed five large-scale Project Clean Lake green infrastructure projects with plans to construct a total of nine representing a \$65 million investment.

Through the District’s Green Infrastructure Grants Program, funding is available for GI projects within the District’s combined sewer area that remove stormwater from the combined sewer system. Since the start of the GI grant program, the District has funded 26 projects for a total investment of \$4.53 million with an additional \$2 million committed to the 2019 GI grants cycle.



Enhancing the environmental and social benefits of Green Infrastructure that has been designed for efficient stormwater management has the potential to enhance funding and partnerships. Green Infrastructure can provide aesthetic enhancement, create green jobs, and enhance public green space and connectivity. The District is working to increase the benefits of green infrastructure by participating in the following programs:

- The Water Environment and Research Foundation’s GI Co-benefits project to quantify the multiple benefits of implementing green infrastructure (GI) and to evaluate its economic, environmental/ecological, and social merits at the community scale.
- The District’s External Advisory Committee worked collaboratively with the District to create solutions to reduce barriers to building successful GI grant-funded projects.

## Natural Systems

The District also helps to restore and preserve natural areas as part of the green infrastructure program. This natural infrastructure helps to preserve ecological function in our waterways. Through the Water Resource Restoration Sponsor Program, the District reduces interest payments on state loans while at the same time sponsoring \$52 million in restoration and conservation projects since 2005, preserving 5,343 acres of land, 31.5 miles of stream and restored 4.8 miles of stream.



*Figure 11 Acacia Reservation Restoration as part of the Water Resource Restoration Sponsor Program (WRRSP)*

## Regional Stormwater Management Program

The Sewer District's Regional Stormwater Management Program addresses problems related to stormwater runoff from hard surfaces. Runoff contributes to regional stream flooding, erosion, and water-quality issues, and the program improves our ability to further address stormwater problems that cross community boundaries. As part of the program the district is undertaking planning, maintenance, and construction activities in streams and culverts to address these issues as well as funding member communities through Community Cost Share to support community-specific stormwater projects. This program is a critical climate adaptation and resilience program for the region to help manage current and predicted levels of precipitation.

## *Workforce Programs*

As the District continues to invest in infrastructure across its service area, those investments can contribute to the health and economic vitality of the region.

### Business Opportunity Program

The Business Opportunity Program of Northeast Ohio Regional Sewer District promotes procurement opportunities for small and local businesses in order to contribute to the economic health and vitality of the region. The program focuses an economic impact in the geographic area it serves. In this way, customers have a greater opportunity to do business with the District, resulting in job and business growth for the local business community. Bringing new companies into the District's procurement process enhances our competitive bidding process and it helps get the greatest value for the money it spends. From 2013-2017 contractors in the BOP were awarded contracts totaling \$178,694,021.47—more than 20% of total contracts.

### Good Neighbor Ambassadors

The Good Neighbor Ambassadors (GNAs) act as liaisons between the District, various community and business organizations, and the public. The team's current focus is the Glenville neighborhood for the duration of our Dugway Tunnel construction. Ambassadors keep Glenville residents up to date on what is happening in their neighborhood, distributing informational materials, answering questions, and addressing concerns about the District's construction projects.

They also perform clean-up and maintenance work near District construction sites, and participate in educational and professional-development opportunities and community engagement.

In addition, the program prepares our Ambassadors for full-time employment. Each week, they receive career-development training on such topics as resume writing and personal-finance skills. Currently there are four GNAs and 46 alumni. Eighty percent of alumni are now placed in full-time employment.



*Figure 12 A Good Neighbor Ambassador picks up debris near a resident's home during a property maintenance visit.*

### Emerald Cities E-Contractors Academy

In fall 2017, the District collaborated with Emerald Cities Cleveland to host a 7-week E-Contractor Academy. E-Contractor Academy prepared small, minority, women, and veteran contractors to perform water and energy efficiency retrofits and green infrastructure projects and to learn how to bid on projects. The program focused on the District's Green Infrastructure program, urban forestry, how to do business in the public sector and with the District, including certification in our Business Opportunity Program and resources for additional training and professional development.



Figure 13 E-Contractor Academy Completion Event

### *Water Equity Taskforce*

As a host utility for the US Water Alliance's National Water Equity Taskforce, the District is convening several partner organizations to develop a water equity roadmap and plan for Northeast Ohio with the following 3 foci:

1. Ensure all people have access to clean, safe, affordable water service.
2. Maximize the community and economic benefits of water infrastructure investment.
3. Foster community resilience in the face of a changing climate.

Participating organizations include Cleveland Division of Water, CHN Housing Partners, Cleveland Mayor’s Office of Sustainability, DrinkLocal DrinkTap, Emerald Cities Cleveland, Environmental Health Watch, The George Gund Foundation, The Cleveland Foundation, Slavic Village Development Corporation, Burten Bell Carr Community Development Corporation, and Cleveland Neighborhood Progress.

### *Tree Stewardship and Urban Forestry*

Trees are an important component in the urban and suburban environment when it comes to climate mitigation and adaptation, including stormwater management, improving water quality, reducing urban heat islands, and reducing air pollution. The District is involved in several initiatives to improve tree canopy and the urban forest.

The District will plant approximately 1,000 trees between 2017-2022 as part of planned construction activities. In addition, the District is considering enhanced tree plantings on properties owned and maintained by the District that are no longer needed for construction activities.

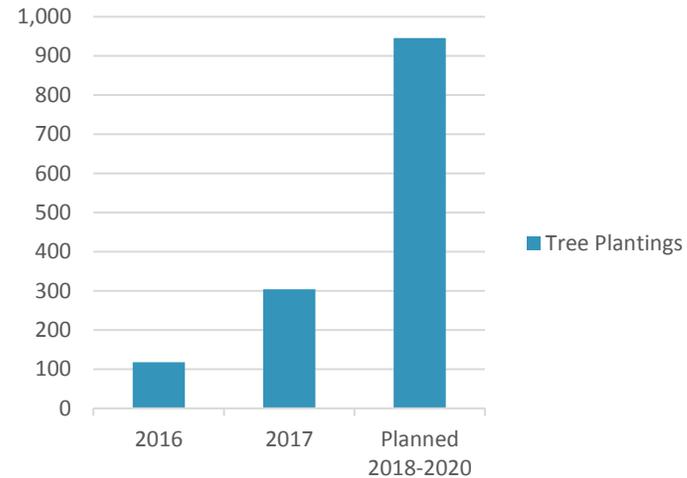


Figure 14 Figure 13 Sewer District-sponsored Arbor Day 2017 at Citizen’s Academy

The District is a founding member of the Cleveland Tree Coalition and has funded Chagrin Watershed Partners to research the feasibility of including tree plantings as part of the residential stormwater credit program.



Figure 15 District staff work with students and the community on Arbor Day 2018



The District is an annual sponsor of Cleveland’s Arbor Day activities and in 2018 collaborated with Western Reserve Land Conservancy and Holden Arboretum to plant trees at a property used for the Dugway West Tunnel construction project in the Glenville Neighborhood. This site is across the street from Cleveland Metropolitan School District’s Roosevelt School and engaged its students in the Arbor Day activities.

## Future Focus: Exploring the Green Infrastructure Workforce

The District is working with several partners to develop a Green Infrastructure Maintenance Certification program that meets the region’s need for a trained green infrastructure workforce and connects job seekers to green jobs. The first outcome of this effort will be a Green Infrastructure Workforce Demand Study for Northeast Ohio.

<sup>i</sup> Great Lakes Integrated Science Assessment NOAA Regional Integrated Sciences and Assessments program Cleveland Climatology: [http://glisa.umich.edu/media/climatologies/CLEVELAND\\_OH\\_Climatology.pdf](http://glisa.umich.edu/media/climatologies/CLEVELAND_OH_Climatology.pdf)

