

Copy

INTEROFFICE MEMORANDUM

Metropolitan Water Reclamation District of Greater Chicago

DEPARTMENT: GA – Office of Public Affairs **DATE:** January 11, 2016

To: Manju Prakash Sharma, Director of Maintenance and Operations
From: Allison Fore, Public & Intergovernmental Affairs Officer
Subject: EMS for Biosolids – Goals & Objectives: FINAL STATUS (Element 9)

Below is a summary of progress towards meeting our 2015 Goals and Objectives.

Public Affairs Biosolids EMS Goals and Objectives for 2015
Element 9 – EMS Communications

This comprehensive report includes public education, outreach activities and tours related to the District's biosolids management program in 2015.

I. Articles mentioning biosolids that were written and published by the MWRD

1st Quarter - None

2nd Quarter

April 13, 2015

Commissioners visit Illinois General Assembly to discuss legislative initiatives

Commissioners from the Metropolitan Water Reclamation District of Greater Chicago (MWRD) held their first private meeting with Governor Bruce Rauner and met with legislative leaders during their annual visit to the state capitol in Springfield last month.

President Mariyana Spyropoulos, Vice President Barbara McGowan, Chairman of Finance Frank Avila and Commissioners Debra Shore, Kari Steele and Cynthia Santos discussed MWRD biosolids and other initiatives. Biosolids are a valuable resource recovered from the wastewater treatment process that can be used to improve soil fertility and soil moisture holding capacity. The biosolids are used to improve agricultural land, provide organic matter and nutrients to sod farms and nurseries, and construct golf courses, parks, and athletic fields.

“Beneficial use of biosolids is one way to maximize public funds, and it is important that we provide members of the General Assembly an update on this type of work the District has underway,” said President Mariyana Spyropoulos. “In addition to biosolids, we have major projects coming online this year and hope our elected officials can experience for themselves the magnitude and impact of these initiatives.”

Two of the major initiatives coming online in 2015 are the Thornton Composite Reservoir, located in Thornton, IL and disinfection at the Calumet Water Reclamation Plant (WRP) in

Chicago. The Thornton Reservoir is part of the Tunnel and Reservoir Plan which is designed to protect 182,000 structures and serve 556,000 people in 14 communities throughout the south side of Chicago and south suburbs of Cook County. It will provide 7.9 billion gallons of storage and \$40 million per year in flood control benefits. Adding chlorination/dechlorination disinfection facilities at the Calumet WRP in Chicago will help improve water quality in the Chicago Area Waterway System.



MWRD Commissioners pause in front of the state capitol in Springfield, IL before meeting with legislative leaders last month.



(L-R) Chairman of Finance Frank Avila, President Mariyana Spyropoulos, Commissioners Kari Steele and Cynthia Santos, Vice Pres. Barbara McGowan, and Commissioner Debra Shore met with Governor Bruce Rauner to discuss MWRD **biosolids**. They are pictured with the Governor in his office.



House Majority Leader Barbara Flynn Currie, in red, is flanked by MWRD Commissioners.
www.mwrld.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_0413_Springfield_FINAL.pdf

April 24, 2015

MWRD celebrates Earth Month with area activities and continued progress with green initiatives

In commemoration of Earth Month, the Metropolitan Water Reclamation District of Greater Chicago (MWRD) will partner with several organizations to highlight its ongoing commitment to environmental stewardship. During this month of service and awareness for many environmental causes, the MWRD is adding to its growing list of sustainable solutions in its efforts to improve water quality, reduce flooding and treat wastewater.

The MWRD will attend several Earth Day activities to promote its rain barrel program and many ongoing green initiatives, such as phosphorus recovery, nitrogen removal and pathogenic bacteria reduction from area waterways.

In addition to its many water quality improvement projects, the MWRD is investing in green infrastructure with a green roof installation at the Racine Avenue Pumping Station, the construction of a hybrid porous pavement with bioretention at the Egan WRP and the composting of biosolids through wood chips. In its quest to become energy neutral within the next decade, the MWRD is creating energy from sewage solids and organic waste material to offset energy demands at treatment plants and reduce the amount of waste sent to landfills. The MWRD is also generating other sources of renewable through solar heat, sewer thermal heat pumps and a pico turbine using water.

MWRD officials will be on hand at various locations this Saturday, April 25 to participate in Earth Month events, including:

--Chesterfield Community Council Home Expo 2015 at Tuley Park Field House, 501 E. 90th Place, Chicago, 10 a.m. to 1 p.m.

--Park District of Franklin Park Earth Day Celebration at North Park, 10040 Addison Ave., Franklin Park, Noon to 2 p.m.

--Orland Park Earth Day Smart Living Fair and Clean the Park event at the Recreation Administration Building, 14600 S. Ravinia, Ave., Orland Park, 11 a.m. to 3 p.m.

--Northbrook Annual Earth Day/Arbor Day Celebration at the Village Green Park, corner of Shermer and Meadow roads, Northbrook, 8:30 a.m. to 1 p.m.

--The 6th Annual Oak Park Earth Fest at the Oak Park Public Works Center, 201 South Blvd., Oak Park, 10 a.m. to 2 p.m.

www.mwr.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_0424_Earth_Day.pdf

June 9, 2015

MWRD seeks applicants for Sustainable Landscaping and Biosolids User awards; Applications due June 28, 2015

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) is accepting applications for its 2014 Sustainable Landscaping and Biosolids Beneficial Reuse Awards until June 28.

The awards will recognize the activities and innovations of individuals and organizations such as park districts, villages, schools, golf courses, and athletic clubs in two separate categories:

sustainable landscaping and beneficial use of biosolids. Biosolids are a product of the MWRD's water treatment process and are a sustainable alternative to chemical fertilizers.

The beneficial use of biosolids may be demonstrated through any one or a combination of the following:

- Continuous commitment to maximize and improve the cost-effectiveness of using biosolids.
- Promotion such as, but not limited to, referrals and field demonstrations.
- Educational efforts on the environmental/economic benefits of using biosolids.

Qualifications for the Sustainable Landscaping award may be demonstrated through the innovative use of green infrastructure, capital investment, and how an individual or organization promotes green landscaping to educate the community. The goal is to present an award to an individual or community that integrates sustainable practices in the environment that manages stormwater. For the purposes for the award, green infrastructure includes:

- Rainwater Harvesting, i.e. through rain barrels
- Rain Gardens
- Native Landscaping
- Stormwater Trees
- Porous Pavement
- Bio-Swales
- Green Roofs
- Greenways
- Wetlands
- Green Alleys, Streets, and Parking Lots

Activities completed after January 1, 2010 are eligible for an award, and an individual or organization is eligible once every five years. Applications should include figures, illustrations, narrative, and photos to help further explain the efforts. The evaluation process may include a site visit.

Submit application packages to Lakhwinder.Hundal@mwrdd.org or mail to:
Dr. Lakhwinder S. Hundal, CPSS
Monitoring & Research Department
Metropolitan Water Reclamation District of Greater Chicago
6001 W. Pershing Road
Cicero, IL 60804

Awards will be presented at the MWRD's third Sustainability Summit later this year. For more information about the biosolids program, awards or Sustainability Summit, contact (312) 751-6633.

www.mwrdd.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_0609_Biosolids_User_Award_Advisory_FINAL2.pdf

June 12, 2015

MWRD commissioners, staff attend WEF Residuals and Biosolids conference in Washington, D.C.

In the rapidly-evolving field of residuals and biosolids, water treatment industry leaders actively pursue the latest and best practices of reuse and disposal. As a result of these efforts, waterways that were once a dumping ground for biosolids and residuals are now being cleaned and made safer for recreation and for fish populations.

Metropolitan Water Reclamation District of Greater Chicago (MWRD) staff along with Chairman of Finance Frank Avila and Commissioner Kari Steele are staying informed with the latest advancements in residuals and biosolids with other water leaders from across the world. The group represented the MWRD at the annual Water Environment Federation/International Water Association (WEF/IWA) Residuals and Biosolids Conference held in Washington, D.C. this week. Participating MWRD staff included Senior Environmental Soil Scientist Lakhwinder S. Hundal, Managing Civil Engineer Daniel Collins, Senior Civil Engineer Matthew McGregor and Senior Civil Engineer Ahmad Laban.

"Working together, scientists, engineers and other professionals in the field of water treatment have banded together to learn how we best manage these products. Sharing in this knowledge has led to new advancements in the field, and our environment has benefited greatly," said Commissioner Avila. "Three decades ago, this was all going straight into our waterways. Now, we are not only finding legitimate reuse, but also making the world around us a healthier place to live."

The WEF/IWA conference, themed "The Next Generation of Science, Technology, and Management," offered comprehensive information on industry hot topics, advancements in residuals and biosolids technologies and management and valuable learning opportunities to both seasoned biosolids professionals and newcomers to the field. The technical program this year highlighted nonprofit organizations serving people in Third and Fourth World nations through the development of clean water, sanitation and micro-business projects and programs and related services.

Other sessions and workshops focused on sustainable dewatering processes and practices, nutrient management and resource recovery, anaerobic digestion processes and composting advancements.



In the photo (L-R): MWRD Senior Civil Engineer Matthew McGregor (from left), Senior Environmental Soil Scientist Lakhwinder S. Hundal, MWRD Chairman of Finance Frank Avila, Managing Civil Engineer

Daniel Collins and Senior Civil Engineer Ahmad Laban attended the Water Environment Federation/International Water Association (WEF/IWA) Residuals and **Biosolids** Conference WEF Residuals & **Biosolids** in Washington, D.C.



In the photos: While attending the non-profit exhibit section of the Water Environment Federation/International Water Association Residuals and **Biosolids** Conference in Washington D.C., Metropolitan Water Reclamation District of Greater Chicago Chairman of Finance Frank Avila met the WEF mascot and also Kelly Latham, Director of Program Quality International Programs for Water for People.



In the photo: Commissioner Kari Steele (on the left) joined Commissioner Avila on a session regarding nutrient recovery at the Water Environment Federation/International Water Association Residuals and Biosolids Conference in Washington D.C.

www.mwrdd.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_0610_WEF_Residuals_and_Biosolids_Conf.pdf

3rd Quarter

August 5, 2015

Governor Rauner, General Assembly improve public access to locally produced soil enhancer

Now that Governor Bruce Rauner has signed legislation recognizing "Exceptional Quality Biosolids" and their importance as a beneficial recycled material, the Metropolitan Water Reclamation District of Greater Chicago (MWRD) is one step closer to making this nutrient rich soil enhancer available to the public.

Public Act 99-0067 amends the Illinois Environmental Protection Act (IEPA) to create the new definition of "E.Q. biosolids." The MWRD worked with the IEPA, Illinois Department of Agriculture, and several environmental groups to develop the legislation.

"The Board of Commissioners applauds the Illinois General Assembly for passing this bill and commends the Governor for signing this legislation," said MWRD Board President Mariyana Spyropoulos. "We are particularly grateful to the bill's sponsor, Assistant Majority Leader Elaine Nekritz. We are also thankful that the IEPA was willing to amend the Illinois Environmental Protection Act."

MWRD biosolids are a high quality product of the wastewater treatment process. Air-dried biosolids look like dark, fine-textured topsoil and are a sustainable alternative to chemical fertilizers. Instead of being trucked to a landfill, they can be used almost anywhere soil amendments and chemical fertilizers would be used. Golf courses, athletic fields, parks and recreational facilities, and agricultural fields have used MWRD biosolids. They have also been used to restore brownfields and other disturbed lands.

"Recognition of Exceptional Quality biosolids in the state of Illinois is consistent with federal rules and is an important step towards achieving a resource recovery model," said President Spyropoulos. "Changing the law makes good environmental sense and good economic sense."

The law helps cement the MWRD's biosolids program which has received much acclaim from the farmers, golf course managers, landscapers, municipalities, park districts, and home owners that have used them.

Jerry Gillis, Superintendent of Buildings & Grounds for the Midlothian Park District, has found success using biosolids. "Biosolids helped us develop a high quality turf that eliminated invasive weeds and created thick green strong grass on all our playing fields. Also, our maintenance field care costs and amount of staff hours to repair heavily worn out areas have reduced drastically."

Gina Hassett, Hinsdale Director of Parks & Recreation, agreed with Gillis. "With biosolids, our fields thrive and look like plush carpets."

The MWRD is working on a plan to make biosolids available for public use and plans to have a distribution method in place by next spring.



Dan Collins, MWRD Supervising Civil Engineer and biosolids program manager, shows biosolids to a Telemundo cameraman on August 4. Biosolids are a sustainable alternative to fertilizer that are developed through the wastewater treatment process.

www.mwrdd.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_0805_Biosolids.pdf

4th Quarter

For immediate release
October 17, 2015

**Improved Centennial Trail opens to great fanfare
New scenic overlook offers sweeping views above the Des Plaines
River valley**



In the photo: The Centennial Trail in Willow Springs opened to great fanfare Saturday. Cutting the ceremonial ribbon were LaGrange Lions Club Past Pres. Todd Combs, Trails for IL Exec. Director Steve Buchtel, Willow Springs Administrator Bill Murray, MWRD Exec. Director David St. Pierre, Congressman Dan Lipinski, and MWRD Pres. Mariyana Spyropoulos.

A new public amenity was unveiled on Sat., Oct. 17 at Columbia Woods Forest Preserve in Willow Springs, along property owned by the MWRD and leased to the Forest Preserves of Cook County (FPCC). Two new foothills accessible to hikers and eventually to mountain bikes in 2016 have been added to the Centennial Trail.

The hills were constructed as part of an MWRD project to remove 1.8 million cubic yards of overburden (dirt) from the neighboring McCook Reservoir, a component of the Tunnel and Reservoir Plan (TARP). When completed, McCook Reservoir will provide 10 billion gallons of storage to capture combined sewer overflows that discharge to waterways and cause sewer backups. The reservoir will also provide \$90 million per year in flood control benefits to 3.1 million people living in 37 communities. Approx. 500 truck trips per day were needed to haul the overburden.

“We listened to the community and constructed an amenity that will be used for generations to come,” said MWRD president Mariyana Spyropoulos. “In completing this project we were very mindful of meeting the needs of area recreational enthusiasts with the goal of constructing the McCook Reservoir on schedule. I think we have managed to meet everyone’s needs.”

The MWRD considered alternate sites for storing the McCook overburden, but an additional \$9.3 million price tag was not cost-effective. The Centennial Trail site offered a relatively short trip and use of private roads for trucking the overburden, in addition to prioritizing economic, safety and environmental considerations. During construction, the nearby I & M Trail accommodated trail users.

The landscape architect firm Burns and McDonnell designed the new trail based on trail users input during three public meetings. In addition to the two hills, a hiking trail and rest area have also been added. Using the overburden and MWRD’s Class A Exceptional Quality **Biosolids**, the hill will offer a rare opportunity for Chicago area cyclists to ride up and down a slope that

provides sweeping views of the surrounding landscape and waterways. For riders who prefer flat terrain, the trail provides a new and improved route through Columbia Woods.

“The newly improved Centennial Trail demonstrates how collaboration and good planning between government agencies can provide both practical and recreational resources to residents and visitors,” said Eileen Figel, Deputy General Superintendent of the FPCC. “The new 60 foot hill that will open next season will be an added amenity for outdoor enthusiasts looking for an extra challenge.”

Steve Buchtel, executive director, Trail for Illinois, said “The MWRD's made good on its promise to return the Centennial Trail to trail users when they were through, and as a bonus turned a pile of rubble into an amazing "above the trees" trail experience. They're leaving the Centennial Trail better than they found it.”

La Grange Lions Club, Cook County Forest Preserves, and Trails for Illinois sponsored an inaugural Centennial Trail Ride between the trail head near Columbia Woods to Illinois Route 83 and back over an eight-mile loop. Todd Combs, past president of the LaGrange Lions Club said, “MWRD and Trails for Illinois have been great partners in sponsoring the Centennial Trail Reopening Ride which will benefit the many charities the LaGrange Lions support, including individuals needing help with their vision care, annual recipients of a college scholarship, Constance Morris House and several others. And as an avid cyclist, I am thrilled with the way the Centennial Trail has been restored and updated.”



Riders enjoy the newly improved Centennial Trail.



Congressman Lipinski enjoys the newly improved Centennial Trail.



In the photo: Scenic overlook at the new Centennial Hill along the Centennial Trail in Willow Springs, IL. The hill was constructed as part of an MWRD project to remove 1.8 million cubic yards of overburden (dirt) from the neighboring McCook Reservoir, a component of the Tunnel and Reservoir Plan (TARP).



In the photo: Slope of new Centennial Hill along the Centennial Trail in Willow Springs, IL. The hill was constructed as part of an MWRD project to remove 1.8 million cubic yards of overburden (dirt) from the neighboring McCook Reservoir, a component of the Tunnel and Reservoir Plan (TARP).



In the photo: Newly improved Centennial Trail in Willow Springs, IL. The new public amenity was unveiled on Sat., Oct. 17 at Columbia Woods Forest Preserve in Willow Springs, along property owned by the MWRD and leased to the Forest Preserves of Cook County (FPCC). Two new foothills accessible to hikers and eventually to mountain bikes in 2016 have been added to the Centennial Trail

http://peportal.mwrld.local:50100/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_1021_Cent_Trail_PR_Draft.pdf

November 13, 2015

U.S. EPA officials tour MWRD projects, facilities to see local resources recovered, water transformed

A delegation of attorneys from the United States Environmental Protection Agency's (U.S. EPA's) national and regional offices recently toured Metropolitan Water Reclamation District of Greater Chicago (MWRD) facilities and projects that will improve water quality while recovering and reclaiming valuable local resources. General Counsel Avi Garbow, U.S. EPA, and Acting Regional Counsel Bertram Frey joined other attorneys from Washington, D.C. and Region 5 and MWRD's senior staff for the visit.

"The tour illustrated the vast array of projects that MWRD staff is exploring to protect the local water environment and lead to other opportunities in sustainability," said MWRD President Mariyana Spyropoulos. "We have long been known for our dedication to water quality issues dating back to 1889, but the District is also a leader in resource recovery. We appreciate having the opportunity to show how reclaiming these resources can protect our environment while saving taxpayers' substantial money."

The tour stopped by MWRD's Mainstream Pumping Station (PS) in Hodgkins, the Lawndale Avenue Solids Management Area (LASMA) in Willow Springs and the McCook Reservoir.

Descending to as low as 300 feet below ground, the Mainstream PS is one of three stations in the Tunnel and Reservoir Plan designed to eliminate waterway pollution by capturing combined sewer overflows from an area of 375 square miles, preventing backflows into Lake Michigan and providing an outlet for flood waters. Mainstream PS pumps sewer water and stormwater from 31 miles of tunnels to the Stickney Water Reclamation Plant for treatment.

LASMA is home to the MWRD's production of biosolids. The MWRD was recently authorized to use Exceptional Quality biosolids on home gardens. This designation will open up new markets for this valuable soil enhancement product and enables the organization to reduce operating costs significantly. The MWRD has improved the product through the blending of wood chips and other organics, resulting in decreased loads being hauled to landfills.

At the McCook Reservoir, the MWRD is creating the world's largest reservoir in two stages. Phase one will be operational by the end of 2017 and will hold 3.5 billion gallons of water. When fully completed, the reservoir will have a total capacity of 10 billion gallons, larger than the existing Thornton Composite Reservoir. Stage 1 of the McCook Reservoir will provide \$98.5M in flood damage reduction benefits and another \$15.6M from Stage 2, for a total of \$114.1M to 3.1 million people in 37 communities.

EPA officials were also presented with the latest information on the MWRD's sustainability efforts, including several resource recovery projects including:

- Energy Management - Biogas utilization and supplemental organics
- Phosphorus - Building the world's largest phosphorus recovery facility at the Stickney WRP.
- ANITA Mox Nitrogen removal system - Reduces energy usage by 40 percent, saving 120 million kilowatts per hour annually, the equivalent energy provided by 15 utility-scale wind turbines or enough energy to supply 4,500 homes.
- Stormwater Management and Green Infrastructure – Partnering with dozens of communities to provide stormwater management projects, acquiring flood-prone properties and working with the Chicago Public Schools to prepare school properties to better contain stormwater.
- Water Reuse - Exploring options for reuse of treated water in Stickney and Calumet industrial corridors.



Attorneys with the U.S. Environmental Protection Agency toured the McCook Reservoir with officials from the MWRD.



The McCook Reservoir, situated along the Stevenson Expressway (I-55) between the Des Plaines River and Chicago Sanitary and Ship Canal, will reduce pollution in the Chicago Area Waterways System by holding excess water before it can be treated. It will also provide flood relief for a service area more of more than 250 square miles.

www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_1113_USEPA_Visit_FINAL_Resend.pdf

November 18, 2015

Sustainability efforts unearthed at MWRD's annual summit

Municipal leaders and environmental experts gathered to discuss and learn about best practices in sustainability, stormwater management, green infrastructure and renewable resources in water treatment through the Metropolitan Water Reclamation District of Greater Chicago's (MWRD) third annual Sustainability Summit.

This year's Sustainability Summit entitled "Becoming the Utility of the Future," held at the Katherine Legge Memorial Lodge in Hinsdale, brought together more than 75 experts to hear from the MWRD and its many local partners about the latest efforts to transform water and recover resources. The MWRD is striving to become energy neutral by 2023, while working toward the completion of the acclaimed Tunnel and Reservoir Plan to reduce flooding and improve area water quality.

"The annual Sustainability Summit gives our many area partners a chance to hear how we are developing initiatives in sustainability and learning how they can bring these ideas, skills and best management practices back to their own communities and organizations," said MWRD President Mariyana Spyropoulos. "By bringing these like minds together, collaborating and searching for answers, we are all working to make the world a better place to live for future generations."

The event allowed for a series of panels that centered on resource recovery, water quality and re-use, renewable energy, stormwater management, chloride reductions on city streets and recent developments in the study and accessibility of **biosolids**. The MWRD worked with the Illinois Environmental Protection Agency, Illinois Department of Agriculture and several

environmental groups to develop legislation that was signed earlier this year by Gov. Bruce Rauner to amend the Illinois Environmental Protection Act to create a new definition of exceptional quality biosolids and make this recovered resource more accessible. The law establishes the MWRD's biosolids program, which has been heavily sought after by farmers, golf course managers, landscapers, municipalities, park districts and homeowners. The MWRD is currently expanding the use of biosolids by mixing them with woodchips provided by the city of Chicago.

Awards were also given for exceptional biosolids use and stormwater management efforts. Biosolids award winners included Twin Oaks Landscaping, which developed the grounds at Maggie Daley Park using biosolids, and the Oak Lawn Park District and Westside Baseball of Oak Lawn for the beneficial use of biosolids on park grounds. The Chicago Department of Transportation (CDOT) was honored for its work incorporating green infrastructure into the Berteau Greenway project to better manage stormwater. CDOT reconfigured the Berteau Greenway in the 47th Ward by using a concrete diverter, which intercepts stormwater flow and directs it into a bump out that sends stormwater runoff from the street into a planted swale. The plants and soil absorb the stormwater and keep it from entering the sewer system and local basements. CDOT also replaced asphalt with green space to absorb stormwater; used plants to cleanse the stormwater of pollutants; and employed a stone and gravel forebay to reduce erosion and filter out debris and sediment.

Oak Lawn was also honored for its participation in the MWRD's free rain barrel program. In only a few months since enrolling in the program this summer, the village ordered and received more than 4,000 rain barrels for its residents, the most of any participating community. In less than six months, the MWRD has distributed more than 20,000 free rain barrels among 59 communities and a dozen non-governmental organizations.



Metropolitan Water Reclamation District of Greater Chicago (MWRD) President Mariyana Spyropoulos (front, third from right) and Chairman of Finance Frank Avila (front, second from right) presented awards

at the MWRD's third annual Sustainability Summit to: (from l to r) Oak Lawn Public Works Director Steve Barrett, Oak Lawn Sewer Division Manager Bill Meyer, Oak Lawn Park District Horticulturist Dolly Foster, Oak Lawn Superintendent of Parks Joel Craig, Chicago Department of Transportation landscape architect Kris Sorich, T.Y. Lin International engineer David Gleason, Twin Oaks Landscaping Project Manager Shane Edwards and Janet Dukic, representing Westside Baseball of Oak Lawn.



For their work on the **Biosolids** Utilization Section with the Metropolitan Water Reclamation District of Greater Chicago (MWRD), soil scientists were honored by MWRD President Mariyana Spyropoulos (fourth from right) and MWRD Chairman of Finance Frank Avila (third from right) at the third annual Sustainability Summit. Dominic Brose (from l to r), Maricelo Sabido, Lakhwinder Hundal, Mina Patel, Andy Scottt, Olawale Oladeji and Jeff Simpson were recognized.

www.mwrdd.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_1120_Sustainability_Summit_Final.pdf

December 15, 2015

Civic Federation, Friends of Chicago River deem MWRD's 2016 budget "fiscally-responsible, environmentally-responsible and progressive"

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) has received crucial support for its 2016 budget.

On the day it released its report and full analysis, the Civic Federation gave the MWRD its approval at a public hearing on the agency's proposed 2016 budget. Civic Federation President Laurence Msall said the independent, non-partisan government research organization supported the MWRD for proposing "a reasonable, balanced budget while maintaining ample

reserves and continuing to be fiscally responsible by properly funding its pensions and prefunding its retiree health benefits.”

The Civic Federation report stated it “supports” the following elements of the proposed budget:

- The MWRD’s fiscally responsible practices of fully funding pensions and Other Post-Employee Benefits (OPEB);
- Continuing to utilize, publish and make publicly available online its long-term planning practices;
- Maintaining ample reserves; and
- Providing context for changes in the appropriations summary in the FY2016 Tentative Budget.

“We appreciate the expertise, input and support from the Civic Federation,” said MWRD Commissioner Kari Steele, chairman of the MWRD Committee on Budget and Employment. “The MWRD strives to present a balanced, responsible and transparent budget each year.”

The MWRD has built a reputation for maintaining stability in both the services it provides and the financial stewardship of its resources. Spending for the overall operations, including capital costs and pension, decreased \$100 million from \$1.023 billion in 2010 to an estimated \$921 million projected for 2015. General Corporate Fund expenditures, which represent the MWRD’s operating expenses, have decreased slightly from \$330.9 million to \$326.7 million over the same five-year period. At the same time, the General Corporate Fund reserves have increased from \$142 million to \$259 million, adding to MWRD’s financial stability and its ability to address future operating challenges without significant tax raises.

The MWRD’s pension plan has also increased its funding ratio in recent years and the MWRD’s retiree medical plan or OPEB funding percentage increased from 9.1 percent in 2010 to 46.4 percent in 2014. Moody’s July 2015 publication on the pension liabilities for the 50 largest local governments in the nation listed the MWRD as number 50, or the lowest, in funding shortfalls.

“We have been aggressive over the past few years in addressing some of the primary drivers of our budget, including energy, personnel and health costs and pension obligations,” said President Mariyana Spyropoulos. “We thank our hardworking staff who strive to work efficiently and within budget.”

Msall testified before the MWRD Board of Commissioners on December 3. “The MWRD was the first government agency to go to Springfield to discuss pension reform, and the first to go to Springfield with a plan,” he said.

The MWRD has also shown how self-sustaining measures in resource recovery have been extremely beneficial to agency finances. Over the next five years, revenue from resource recovery in water, phosphorus, biosolids and energy will offset user rates by \$10 million/year. Over 10 years, the MWRD will offset rates between \$50 million to \$70 million/year.

“The District’s adherence to its fund balance policy and maintenance of a substantial reserve in its Corporate Fund is fiscally responsible. The Federation commends the MWRD for continuing to maintain ample reserves in its non-appropriated Corporate Fund,” the Civic Federation report stated. “The Federation additionally supports the MWRD’s continued use of long-term financial planning through five-year financial forecasting and its Strategic Business Plan to guide operations and future projects.”

Friends of the Chicago River also pledged its support of the tentative 2016 budget at the annual hearing. Anthony Cefali, policy and planning specialist for the Friends of the Chicago River, applauded the MWRD for crafting a “progressive and environmentally-responsible budget.”

“These investments—whether for green infrastructure, disinfection or nutrient recovery—will change the very nature of the Chicago River and provide much needed infrastructure enhancements throughout the system. The budget also represents an important shift in focus, as wastewater becomes an opportunity to add value to the treatment process as well as our water environment,” Cefali said.

To view the full 55-page analysis from the Civic Federation, visit [here](#). To view, the MWRD’s proposed 2016 budget visit [here](#).



After extensive analysis, the Civic Federation President Laurence Msall gave the Metropolitan Water Reclamation District of Greater Chicago (MWRD) support for its proposed 2016 budget at MWRD public hearings.



Representing the Friends of the Chicago River, Policy and Planning Specialist Anthony Cefali spoke before the Metropolitan Water Reclamation District of Greater Chicago's (MWRD) Board of Commissioners to announce the Friends' approval of the MWRD's tentative 2016 citing the MWRD's commitment to water quality improvements by bringing disinfection in water treatment online and putting the Thornton Composite Reservoir in service.

http://pepportal.mwrld.local:50100/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_1216_CivicFed_BudgetHearing_Final.pdf

December 17, 2015

MWRD's Egan Water Reclamation Plant celebrates 40 years of service and innovation in enhancing water quality and pioneering technology

The John E. Egan Water Reclamation Plant (WRP) in Schaumburg turns 40 this month, and its history of improving local water while setting groundbreaking trends in resource recovery projects make it an asset to the Metropolitan Water Reclamation District of Greater Chicago (MWRD) and residents of the northwest suburbs.

The Egan WRP, which serves the communities of Schaumburg, Arlington Heights, Elk Grove Village, Hoffman Estates, Inverness, Palatine, Rolling Meadows and Roselle, has been in operation since Dec. 16, 1975. Seven years after it came into service, the United States Environmental Protection Agency selected the Egan WRP as the "best operated and maintained" large plant in Region V. Noted for its advances in the art and science of water treatment, the Egan WRP incorporates advanced secondary treatment along with tertiary filtration for the removal of water-borne pollutants. The facility treats on average of 30 million gallons of water per day and can treat as many as 50 million gallons per day at capacity.

Today, the Egan WRP is recovering more than water. Besides the myriads of initiatives the plant has developed in establishing renewable energy resources, the Egan WRP has also developed a way to lessen the impact of phosphorus and nitrogen on waterways by removing ammonia in the treatment process.

"We are proud of 40 years of commitment to transforming and protecting our water quality at the Egan Water Reclamation Plant," said MWRD President Mariyana Spyropoulos. "Every day, our 75 staff members at Egan work hard to meet the demands of treating tens of millions of gallons of water in a most environmentally and efficient way that allows us to reduce our energy usage and create new opportunities through resources collected in the treatment process."

The National Association of Clean Water Agencies awarded the Egan WRP earlier this year with a gold award for meeting 100 percent compliance with National Pollutant Discharge Elimination System (NPDES) permits for an entire calendar year.

At the Egan WRP, water is disinfected using chlorination and dechlorination, and there are tertiary filters made of dual media of sand and anthracite for further polishing of solids. The clean water is released from the Egan WRP into Upper Salt Creek. After only 7.8 hours, the Egan WRP can transform sewage to clean water.

To remove nitrogen and phosphorus during water treatment at the Egan WRP, the MWRD is installing the ANITA™ Mox process that is specially used for treatment of streams highly loaded in ammonia. These streams, also known as centrate, the water remaining at Egan after removal

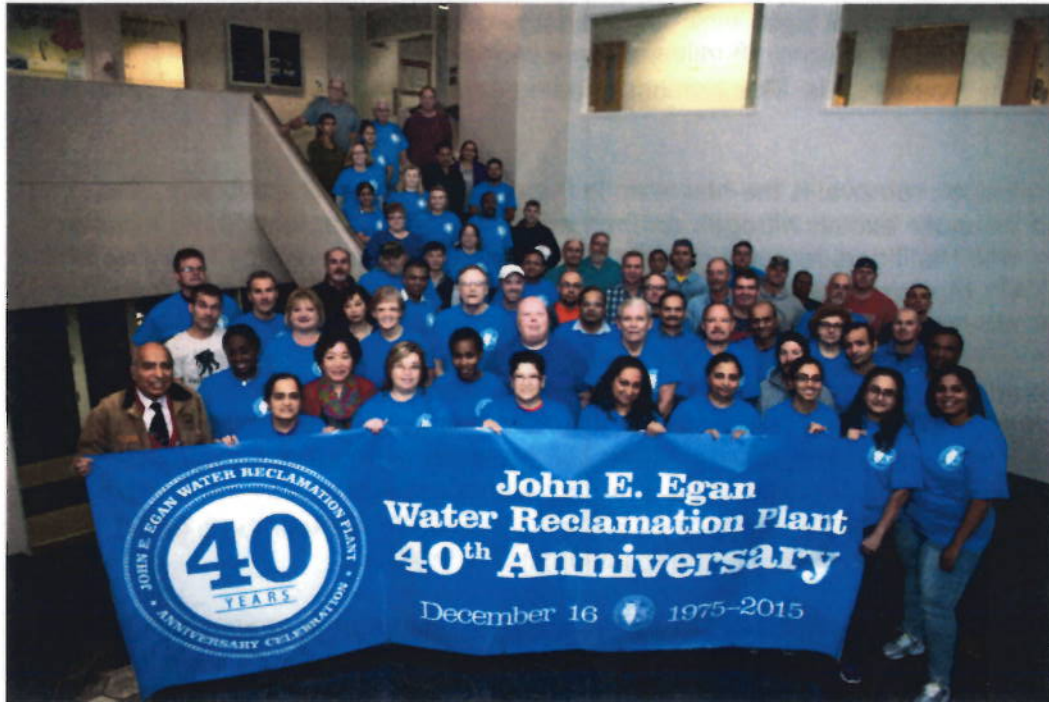
of solids, will be treated onsite at Egan WRP in an energy-efficient manner rather than having it diverted to the O'Brien WRP, roughly 15 miles away, exacerbating odor and corrosion in the collection system, as it currently is. This process is being constructed using existing tanks at the Egan WRP.

Energy efficient nitrogen removal is the next step in the evolution of water treatment. The process is critical because excess nitrogen discharged to waterways can contribute to water quality problems, and traditional removal of nitrogen from wastewater is energy intensive and costly. The ANITA™ Mox process is designed to achieve ammonia removal higher than 90 percent and total nitrogen removal in the range of 75 to 85 percent without external carbon addition and at a very low energy cost compared to conventional nitrification-denitrification. The project aims to reduce oxygen consumption by 60 percent, eliminate all chemical oxygen demand and decrease carbon dioxide emissions. If successful, this process will conservatively reduce energy usage by 40 percent, saving 120 million kilowatts per hour annually, the equivalent energy provided by 15 utility-scale wind turbines or enough energy for 4,500 homes. Following a successful cooperative pilot project at the Egan WRP in Schaumburg and in Denver, Colo., the MWRD is moving forward to install ANITA™ MOX.

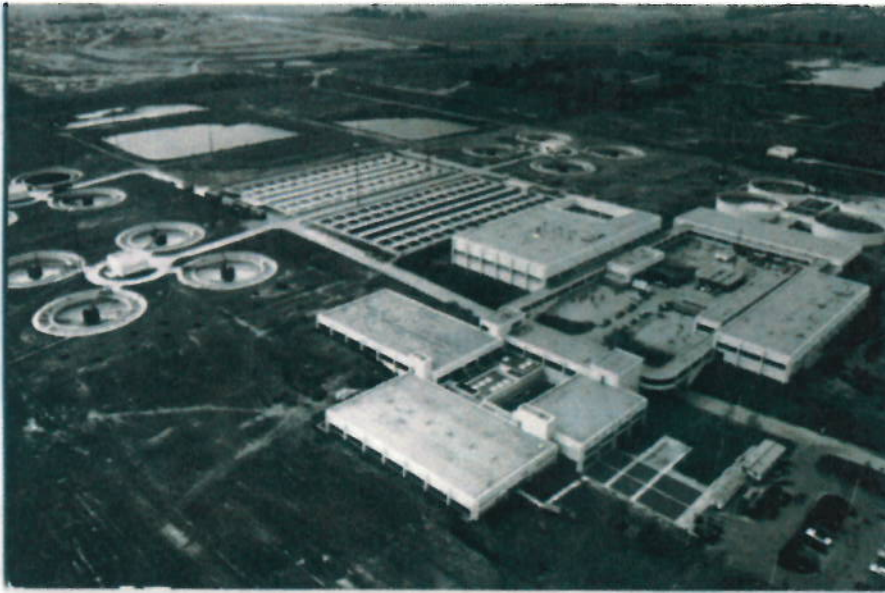
In its pursuit of energy neutrality, the MWRD also installed a solar thermal project to convert solar heat into usable hot water at Egan. The MWRD has installed 45 solar panels, donated by the city of Chicago, through an intergovernmental agreement, and installed the panels with grant assistance from the Illinois Department of Commerce and Economic Opportunity. These panels generate 2,040 therms annually. The system provides preheated boiler make-up water and other hot water needs at the plant. As a result, the MWRD can lower natural and digester gas usage in the steam boiler system and saves non-renewable energy usage and cost; reduces emission of greenhouse gases and pollutants; and serves as a model technology for possible use in other applications.

As part of the water treatment process, the MWRD also upgraded a dewatering facility at the Egan WRP to provide increased storage capacity for biosolids, add a close conveyance system to address odors and improve the system's reliability. The Egan WRP continuously works to improve efficiency by automating chemical intensive processes like disinfection and sludge thickening as well as lowering energy usage in secondary treatment.

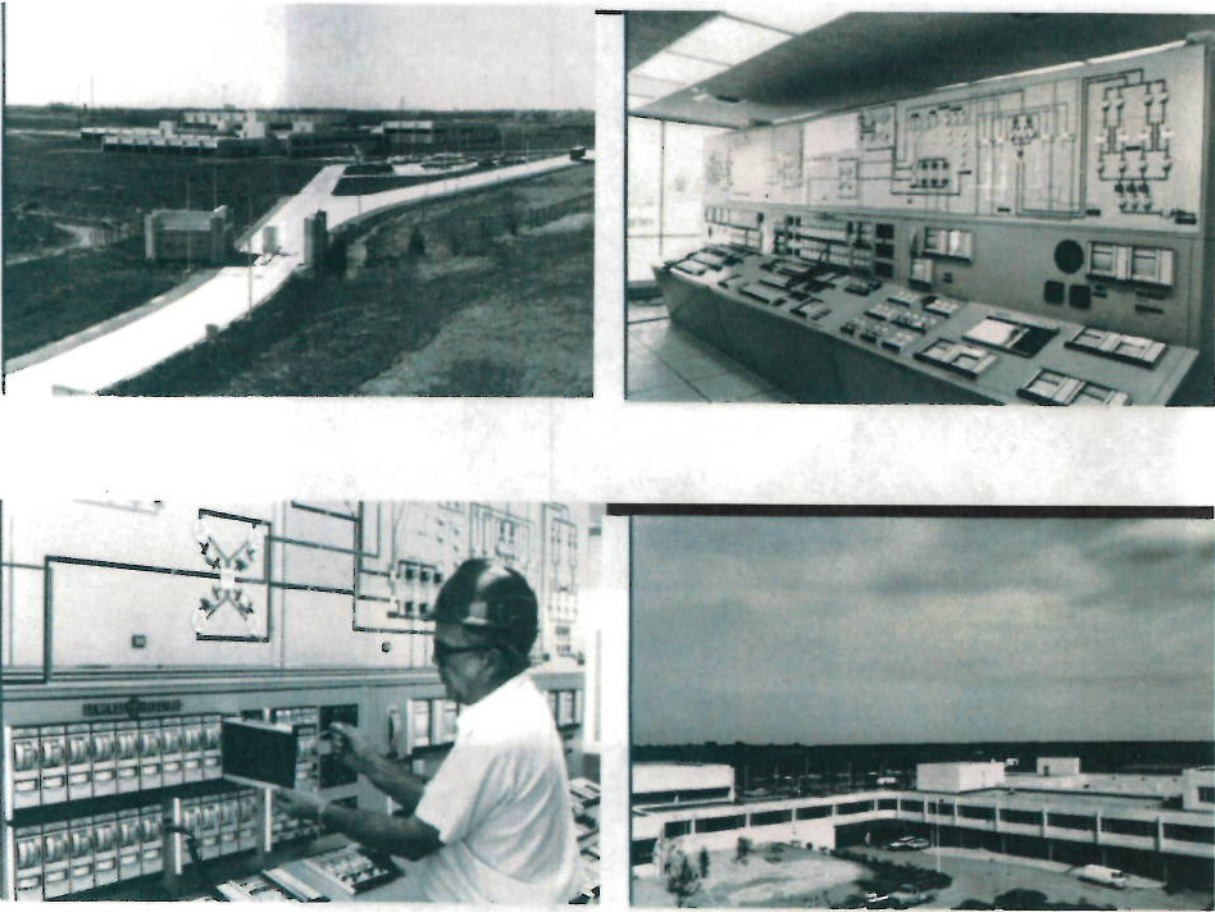
In conjunction with the agency's goals of implementing green infrastructure to meet increasing demands for stormwater management, the MWRD is scheduled to replace the parking lot in 2016 at Egan WRP with new permeable pavement to provide several benefits. The new lot will improve water quality, ground water recharge and delayed discharge of stormwater to the receiving waterway.



Metropolitan Water Reclamation District of Greater Chicago staff and leadership working at the Egan Water Reclamation Plant in Schaumburg celebrate the plant's 40th birthday with a banner and cake.



Before and after aerial images of the Metropolitan Water Reclamation District of Greater Chicago's Egan Water Reclamation Plant looking southwest show how the plant has been a staple while the surrounding Schaumburg community sprawled with development between 1975 and 2015. Communities come to rely on water treatment facilities like Egan, and the closer the plant, the quicker the water is cleaned.



Like today, the Metropolitan Water Reclamation District of Greater Chicago's Egan Water Reclamation Plant was ahead of its time in the technologies it employed in water treatment when it opened in 1975. The plant serves more than 160,000 residents in the northwest suburbs.

www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_1217_Egan_WRP_40th%20Anniversary.pdf

December 17, 2015

MWRD President Spyropoulos covers strong fiscal record, water quality improvements, stormwater management and resource recovery at City Club of Chicago

Metropolitan Water Reclamation District of Greater Chicago (MWRD) President Mariyana Spyropoulos provided a wide-ranging presentation that encapsulated the MWRD's work to date, present focus and exciting future to come before the City Club of Chicago on Dec. 15.

To view the president's remarks, visit www.vimeo.com/149078913 or visit www.cityclub-chicago.org/videos.

“Thank you to the City Club of Chicago and sponsors for hosting the Metropolitan Water Reclamation District of Greater Chicago and allowing us the forum to share our important message,” said MWRD President Mariyana Spyropoulos. “We have an obligation to serve our residents and taxpayers and tell our story of how we strive each day to protect our water environment and serve as global leaders in improving our planet. Over the last year, we have made excellent strides in improving district finances, upgrading water treatment, addressing stormwater management and initiating resource recovery projects, and we are delighted to share our progress.”

President Spyropoulos’ speech touched on MWRD’s history, beginning with the reversal of the Chicago River, followed by a century of growth and ambitious engineering feats, including the latest MWRD marvel—the Thornton Composite Reservoir—which is the largest of its kind in the world, preventing flooding and pollution in area waterways. Other key findings in the president’s speech included:

- Spending for MWRD’s overall operations, including capital costs and pension has decreased \$100 million from \$1.023 billion in 2010 to a projected final expenditure of \$921 million for 2015.
- The General Corporate Fund, which covers the MWRD’s general operating expenses, decreased slightly from \$330.9 million to \$326.7 million over that same period.
- At the same time, the fund’s reserves have increased by 82% from \$142 million to \$259 million.
- The MWRD is working toward becoming energy-neutral by 2023 by using a reverse auction to manage electricity costs, reduce greenhouse gas emissions through renewable/clean energy initiatives and capturing renewable energy from its own systems.
- The MWRD’s bond rating is AAA by S&P and Fitch and Aa2 by Moody’s, keeping bond fees low.
- After working with legislators in Springfield to pass pension reform legislation in 2012, the pension’s unfunded liability saw a marked improvement in 2014, increasing to 55 percent in 2014, up from 50.4 percent in 2012, due to increased employee and employer contributions and higher investment returns.
- The cost of MWRD services falls under the industry norm by more than half; in 2014, the average cost for MWRD services was approximately \$204 for a house valued at \$200,000. The average cost for services in the Midwest region was \$439.
- Based on demand for recreation, the MWRD opened disinfection procedure at the Calumet WRP with O’Brien WRP following next spring.
- As part of the Tunnel and Reservoir Plan, the MWRD opened the Thornton Composite Reservoir to contain up to 7.9 billion gallons of stormwater and sewage, benefiting 14 communities and protecting against about \$40 million a year in flood damage.
- The MWRD has more than 72 stormwater projects moving forward that span immediate construction, preliminary design and design stages.
- In 2015, the MWRD signed agreements with 62 communities and non-government organizations to deliver more than 25,000 rain barrels at no cost to residents.
- Partnering with the Chicago Public Schools, the Healthy Schools Campaign, Openlands and the Chicago Department of Water Management, six school yards across the city were converted into sustainable playgrounds, and 30 more are to come over the next five years.
- By conducting pilot studies on five select local communities, the MWRD is in the process of creating a stormwater master plan that will analyze existing flooding problems and develop a comprehensive approach to address those problems on a regional level.

- Through the MWRD's flood-prone property buyout program and Watershed Management Ordinance, the MWRD is utilizing new tools to tackle flooding issues and ensure future stormwater management are addressed and mitigated.
- Part of MWRD's plan to become energy neutral by 2023, the agency is converting organic material at treatment plants into biogas to be used to heat and cool facilities and sold on the market.
- The MWRD is harvesting phosphorous from waste and selling it through a partnership in the private sector, making it the largest such plant in the world. By recovering this phosphorus, the MWRD can preserve a vital resource that is expected to run out over the next 100 years and reduce the algae blooms that affect the Gulf of Mexico.
- Another recovered resource following the MWRD treatment process, biosolids are a safe product that meets the most stringent standards set by the EPA, and a product that is already used by parks and golf courses around Cook County to help maintain beautiful landscapes.
- Over the next five years, resource recovery will produce an annual revenue stream of \$10 million per year, and that figure is expected to grow as more possibilities are explored.

The President invited all participants and the public to tour the Stickney Water Reclamation Plant, the largest wastewater treatment facility in the world. Please contact 312-751-6633 to schedule a tour.



City Club of Chicago President Jay Doherty, Metropolitan Water Reclamation District of Greater Chicago (MWRD) President Mariyana Spyropoulos and former Gov. Pat Quinn joined the City Club to discuss the latest innovations in water at MWRD.



Metropolitan Water Reclamation District of Greater Chicago President Mariyana Spyropoulos said her agency was able to manage its finances by cutting costs, saving money, investing in the agency and taking proactive maintenance to reduce major costs in the future.





The Metropolitan Water Reclamation District of Greater Chicago Board of Commissioners promoted the work of the agency at the City Club of Chicago.

www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_1217_City_Club_Spyropoulos.pdf

December 24, 2015

Ribbon cuttings help ring in improvements in water treatment, stormwater management in 2015

Resource recovery initiatives move ahead in 2016

Ribbon cuttings in 2015 signified major achievements in water quality improvements and stormwater management in a year highlighted by the completion of disinfection and the Thornton Composite Reservoir as well as the opening of public trails and the use of green infrastructure and rain barrels.

“This has been an immensely productive year for the Metropolitan Water Reclamation District of Greater Chicago,” said MWRD President Mariyana Spyropoulos. “We completed dozens of projects on time and on budget, while continuing to serve as a global leader in environmental stewardship.”

Among the many projects unveiled in 2015:

- The Thornton Composite Reservoir resembled an amusement park this summer when more than 3,000 people toured the completed “Grand Canyon of the south suburbs” that is part of MWRD’s Tunnel and Reservoir Plan (TARP). Designed to hold 7.9 billion gallons of stormwater, the reservoir benefits more than 556,000 people in 14 communities, protects 182,000 buildings and provides more than \$40 million in annual flood damage. After going online in September, it held its ground against a significant rainstorm, taking on 400 million gallons, preventing any combined sewer overflows from occurring in the area and contributing to improved water quality in area waterways.
- In July, the MWRD introduced a new disinfection facility at the Calumet Water Reclamation Plant that incorporates a chlorination/de-chlorination facility that adds another layer to the water treatment process, and in turn, enhances recreational opportunities on the waterways.

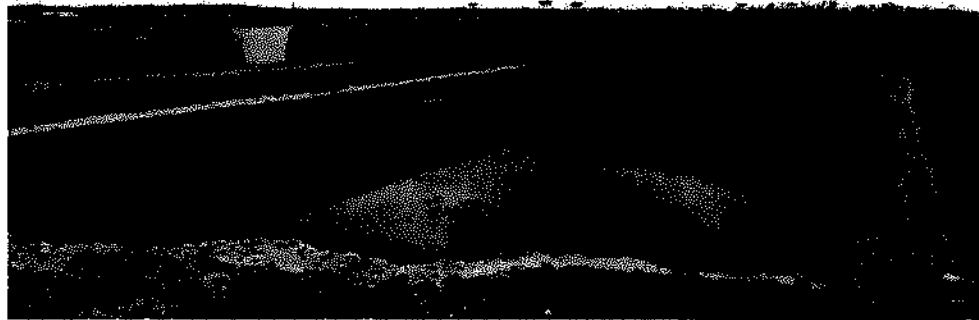
- The MWRD helped open the Cal-Sag Trail and Centennial Trail to provide more access and opportunities for residents looking to enjoy local waterways along MWRD property. The west segment of the Cal-Sag Trail, which opened in June, extends 13 miles from Lemont to Alsip. The MWRD dedicated half of the land on which the trail was built. In October, the MWRD opened the Centennial Trail on its property at Columbia Woods Forest Preserve of Cook County, where hikers and bikers will have new foothills and sweeping vantage points of the surrounding landscape and waterways.
- The MWRD also joined the Wheeling Park District and Village of Wheeling in opening the Heritage Park Flood Control Facility in Wheeling. The facility is situated in the Des Plaines River watershed near the intersection of Dundee and Wolf Roads in Wheeling. The complex provides compensatory floodwater storage upstream of the U.S. Army Corps of Engineers' Levee 37 flood control structure in Mount Prospect and Prospect Heights along the Des Plaines River.
- Since modifying the free rain barrel program in May and publicizing it throughout Cook County communities, the MWRD has signed intergovernmental agreements with more than 60 communities and non-government organizations and delivered more than 25,000 rain barrels at no cost to residents. This popular program will continue in 2016.
- Another investment in green infrastructure, the award-winning Space to Grow program took more productive steps in 2015 as the MWRD partnered with the Healthy Schools Initiative, Openlands, the Chicago Public Schools and Chicago Department of Water Management to transform two Chicago school grounds into green spaces that will improve student and community health. The Space to Grow program has now converted six concrete lots across Chicago into sustainable playgrounds with stormwater detention. The partnership will convert 30 more schools over the next five years.
- On Sept. 26, water professionals from around the globe converged at Pershing East Magnet School, 3200 S. Calumet Ave., Chicago, to construct a green infrastructure learning garden as part of the Water Environment Federation's (WEF's) 88th Annual Technical Exhibition and Conference.
- The MWRD worked with the Illinois Environmental Protection Agency, the Illinois Department of Agriculture and several environmental groups to develop legislation to make biosolids more accessible to the public. This recognition by the Illinois General Assembly and Gov. Bruce Rauner represented another achievement in resource recovery for a product of the water treatment process that has already received acclaim from farmers, golf course managers, landscapers, municipalities, park districts and homeowners. By mixing the biosolids with tree debris provided by the city of Chicago, the MWRD is working to have this fertilizer and compost substitute available for public distribution in spring 2016.

The news on biosolids was not the only critical piece of legislation that will impact the MWRD and benefit local water sources, taxpayers and the region as a whole. The proposed Omnibus Appropriations bill that Congress unveiled for 2016 reauthorizes the Great Lakes Restoration Initiative (GLRI) with \$300 million in funding and provides \$9 million in funding to complete the McCook Reservoir. Senators Dick Durbin and Mark Kirk, along with the entire congressional delegation, worked diligently to advance the initiatives vital to water quality improvements throughout the region.

The continuing construction of the McCook Reservoir heads up an ambitious list of projects the MWRD is set to take on in 2016. Larger than the Thornton Composite Reservoir, which is already the world's largest reservoir of its kind, the McCook Reservoir will be completed in two stages to ultimately hold 10 billion gallons of water and work to prevent pollution in local waterways and provide flood control benefits.

Also in 2016, the MWRD plans to unveil a new ultraviolet disinfection system at its O'Brien Water Reclamation Plant in Skokie. Like the new disinfection facility at the Calumet WRP, the O'Brien disinfection project will drastically improve the quality of the region's waterways. In 2016, the MWRD will also work toward the completion of the world's largest phosphorus recovery facility. The Ostara project at the Stickney Water Reclamation Plant will produce between 9,000 and 10,000 tons of Crystal Green fertilizer annually and reduce the MWRD's nutrient load to the receiving waterways. In addition, the MWRD will continue work on dozens of stormwater management projects to alleviate flooding in the region, while addressing more resource recovery projects that will work toward the agency's goal of energy neutrality by 2023.

"Just as our duty to protect our water supply and manage stormwater and flooding issues has expanded, so too has our resource recovery model, where we are working every day to reduce our carbon footprint and attract renewable resources to promote sustainability for the District and the taxpayers we serve," said President Spyropoulos.



Thornton Reservoir was opened on Sept. 1 and received its first fill of 400 million gallons on Thanksgiving.



Senator Dick Durbin joined the MWRD in cutting the grand opening ribbon on the Calumet WRP disinfection facility on July 17. The chlorination/de-chlorination facility adds another layer to the water treatment process, and in turn, enhances recreational opportunities on the waterways.



MWRD joined the Wheeling Park District and Village of Wheeling in opening the Heritage Park Flood Control Facility in Wheeling. The facility is situated in the Des Plaines River watershed near the intersection of Dundee and Wolf Roads in Wheeling. The complex provides compensatory floodwater storage upstream of the U.S. Army Corps of Engineers' Levee 37 flood control structure in Mount Prospect and Prospect Heights along the Des Plaines River.



Willa Cather Elementary School on Chicago's West Side and Orozco Community Academy in Chicago's Pilsen neighborhood received a \$1.5 million schoolyard transformation from the [Space to Grow program](#), a partnership between Healthy Schools Campaign, Openlands, the MWRD, Chicago Public Schools and the Chicago Department of Water Management. Including the four schools transformed in 2014, this brings the total to six and 30 more will be completed in the next five years.



MWRD [biosolids](#) were mixed with soil to improve the quality of the fields at the new Maggie Daley Park in downtown Chicago. With improved soil quality, the turf grass is healthier, more durable and requires less maintenance. [Biosolids](#) provide nutrients but also improve soil structure, help retain moisture and prevent erosion.



Installation of one of three phosphorus reactors at the Stickney Water Reclamation Plant in Cicero on July 22, 2015. Once in service in early 2016, the phosphorous facility will be the largest of its kind in the world at the largest water reclamation plant in the world.



MWRD Associate Civil Engineer Pat Jensen, Kiewit Job Superintendent Matthew Trotter, MWRD Principal Civil Engineer Carmen Scalise and MWRD Managing Civil Engineer Kevin Fitzpatrick inspected the new tunnel connection at the McCook Reservoir on Nov. 20.



On Sept. 26, water professionals from around the globe converged at Pershing East Magnet School, 3200 S. Calumet Ave., Chicago, to construct a green infrastructure learning garden as part of the Water Environment Federation's (WEF's) 88th Annual Technical Exhibition and Conference.

www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/News&Media/Newsroom/Media/Press_Releases/2015/15_1224_2015_Highlight_Final2.pdf

II. Biosolids in the News

Biosolids appeared in local and national publications in at least 50 instances. A sampling of these hits follow.

1st Quarter

"Where to recycle Christmas trees in Chicago," NBC 5 Chicago

January 2, 2015

Summary: MWRD Supervising Environmental Soil Scientist Dr. Lakhwinder Hundal was interviewed by NBC 5 Chicago reporter LeeAnn Trotter at the Stickney WRP regarding the **biosolids** and wood chips partnership with the city of Chicago. The city is providing the MWRD with approximately 150,000 yards of wood chips over the next three years, and the wood chips will be used as a bulking agent to compost **biosolids** generated by wastewater processing. Wood chips are mixed with the **biosolids** and then composted to produce an organic material for use as a substitute for fertilizer, compost and soil amendment. The organic material could be also used for maintaining or establishing turf grass in parks, athletic fields and public access areas throughout Cook County.

"Putting downed trees to good use," Cutting Edge Magazine

Summary: Composting waste wood with **biosolids** can be a win-win solution to communities facing a growing number of downed or diseased trees. The MWRD treats over 1 billion tons of

wastewater and rain water each day; treatment leaves behind about 165,000 dried tons of biosolids to process into fertilizer for agricultural and landscape use. In 2013 the MWRD began an experiment mixing biosolids with trees already downed by storms or infested with the emerald ash borer beetle. Following strict EPA guidelines the chipped wood is processed carefully, resulting in stable compost which the MWRD plans to begin selling. Commercial compost sells for about \$35 per cubic yard, but Dr. Lakhwinder Hundal, Supervising Environmental Scientist at the MWRD notes, "It isn't close to ours in richness or quality. Ours has many more nutrients."

"IWEA annual conference," IWEA

Summary: The Illinois Water Environment Association's annual conference is February 23-25 in Champaign, IL. Early registration discount ends January 31. The technical program for "Life is Good Water: Renew for the Future" includes: green infrastructure, CSO reduction, nutrient removal and recovery, laboratory trends, and liquid treatment process design. Staff from the MWRD will present a session on biosolids planning.

<http://www.iweasite.org/index.html>

"How do rain gardens help with storm water?" Soils Matter, Get the Scoop!

Summary: In Soil Science of America's newsletter, MWRD Senior Environmental Soil Scientist Kuldip Kumar and Supervising Environmental Soil Scientist Lakhwinder Hundal respond to the question: "How do rain gardens help with storm water?" Since the 19th century, urbanized areas have collected and moved wastewater to water reclamation plants (WRPs) using a connected collection system. In many areas the facilities collect both stormwater and wastewater in combined sewer systems. In some cities such as Los Angeles, New York and Chicago, about 90 percent of the surface is impervious, which means rainfall and melting snow flow over these surfaces and into stormwater systems. During large storms the intensity and amount of water can cause flooding. This can burden the water reclamation plant system and it's very expensive to support the large amount of rainfall and snow. The traditional approach of "capture, convey and treat" is shifting to a focus on more sustainable systems to manage stormwater runoff. The shift is often referred to as "green infrastructure." Rain gardens are one example of green infrastructure. They help reduce the total volume of water entering the drainage system. They also delay the arrival of water reaching the sewer system, which reduces the burden on the WRPs while also reducing instances of combined sewer overflows and localized flooding. Another benefit of rain gardens and other types of green infrastructure such as green roofs and bioswales is they potentially reduce pollutants entering the stormwater system, such as nutrients from fertilizers, road salt and bacteria which can negatively affect aquatic life and public health. Rain gardens collect, treat and filter surface runoff to recharge groundwater, helping the stormwater to avoid the collection systems. Includes a discussion of biosolids. Photo of "Greenest Street in America" taken by Asst. Public Affairs Specialist Dan Wendt.

<https://soilsmatter.wordpress.com/2015/01/21/how-do-rain-gardens-help-with-storm-water/>

"What happens to 'Number 2' in the Second City," WBEZ 91.5 FM Chicago

In conjunction with the WBEZ Curious City program about wastewater treatment that was recorded in the summer of 2014 and aired on March 19, MWRD Microbiologist Toni Glymph was a panelist during a special presentation about the science of wastewater treatment at 7 p.m. on Monday, March 23, at Lincoln Hall, 2424 N. Lincoln Ave. The Curious City program answers questions about Chicago, the region and the people who live here, and a five-year-old child asked "where poop goes?" MWRD staff worked with WBEZ to develop interactive tools to answer the question which includes a discussion of biosolids.

<https://soundcloud.com/curiouscity/what-happens-to-number-2-in-the-second-city>

<http://interactive.wbez.org/curiouscity/poop/>

<http://www.wbez.org/curious-city-live-111446>

“Putting downed trees to good use,” *Cutting Edge*

Summary: Composting waste wood with **biosolids** can be a win-win solution to communities facing a growing number of downed or diseased trees. The MWRD treats ‘over 1 billion tons of wastewater and rain water each day; treatment leaves behind about 165,000 dried tons of **biosolids** to process into fertilizer for agricultural and landscape use. In 2013 the MWRD began an experiment mixing **biosolids** with trees already downed by storms or infested with the emerald ash borer beetle. Following strict EPA guidelines the chipped wood is processed carefully, resulting in stable compost which the MWRD plans to begin selling. Commercial compost sells for about \$35 per cubic yard but Dr. Lakhwinder Hundal, Supervising Environmental Scientist at the MWRD notes, “It isn’t close to ours in richness or quality. Ours has many more nutrients.”

[14 1201_Cutting Edge_biosolids.pdf](#)

2nd Quarter

“Dirty Jobs at the MWRD,” *Univision*

April 24 and 29, 2015

Summary: The piece featuring Univision reporter Aureliano Salgado working with Karla Lopez, ET IV, at Stickney and LASMA aired last night at 10p.m. on WGBO. The reporter skimmed Imhoff tanks, raked a coarse screens dumpster, and dumped a load of solids from the train into a **biosolids** drying cell at LASMA. MWRD President Mariyana Spyropoulos was interviewed.

<http://chicago.univision.com/videos/video/2015-04-24/auri-lo-hace-trabajos-sucios>

“Thornton Quarry — the Grand Canyon of the south suburbs — will soon be underwater,” *Sun Times*

Posted: 05/10/2015, 05:44pm | Neil Steinberg



Thornton Quarry, the Grand Canyon of the south suburbs. | Neil Steinberg/Sun-Times

When Brad Sutter was growing up nearby, of course he saw the Thornton Quarry. You can hardly miss it.

"I've driven past here hundreds and hundred of times," said Sutter, of the series of vast limestone pits flanking Interstate 80/94 just south of Chicago. "As a child, you're 'Wow, it's just so huge.' In my mind it's comparable to the Grand Canyon, though I've never seen it."

So it was with great satisfaction that the 24-year-old's first job for the Walsh Group was Safety Engineer, making sure that everybody who descends into the Grand Canyon of the Southern Suburbs comes back out again.

"Being able to go from seeing it my entire life, to work in it and make sure people go home to their families, it's extremely rewarding," he said.

So you need a hard hat — rocks tumble — and an M20 oxygen rescue pack, since there are massive tunnels to venture into. And neon yellow vests, to help prevent being driven over by heavy equipment. And the right boots, which nobody had mentioned beforehand. It didn't matter that his guests included Mariyana T. Spyropoulos, president of the Metropolitan Water Reclamation District of Greater Chicago and Adel Awad, senior civil engineer for the MWRD, which for the past two years has been turning the north lobe of the Thornton Quarry into the Thornton Composite Reservoir. Sutter had us cool our heels until the proper footgear was sent down from the front office.



Mariyana T. Spyropoulos, president of the Metropolitan Water Reclamation District, and Adel Awad, senior civil engineer | Neil Steinberg/Sun-Times

"Just doing my job," he said.

Not that I minded waiting at the bottom of this unimaginably huge manmade basin, 2,000 feet across, 1,000 feet wide and 300 feet deep, which Hanson Material Services created over the past several decades by removing 76 million tons of limestone. Soon this tableau will be at least partially hidden under billions of gallons of water that would otherwise wind up in the basements of homes or in the Little Calumet River.

"This reservoir is going to protect 14 communities, about 500,000 people. Hopefully, it can save about \$40 million in damages to the communities, annually," Spyropoulos said.

Just having a big pit is not enough, however. It isn't just a matter of hooking it up to the 109-mile Deep Tunnel network and turning a spigot. You have to prep: About \$400 million worth of construction was needed to create the reservoir infrastructure. Limestone is porous, for instance, and the polluted storm and waste water would leach back into the water table if the reservoir weren't sealed like a shower stall.

"The challenge here, you have to grout the four boundaries, to create a kind of wall, a curtain," said Awad.

That was done by digging holes, hundreds of feet deep, every 20 feet or so around the perimeter and filling them with grout.

How much grout?

"A lot," said Awad. Think a tube 6 inches wide and 150 miles long. "That spreads and forms a barrier."

Controlling the force of the incoming water is another challenge. Inside the intake tunnel will be four enormous steel gates, two feet thick, costing \$7 million each, moving on bearings the size of garbage-can lids. The 30-foot-wide intake tunnel is divided into two channels, to reduce the water's force, and outside there is what amounts to a blast plate, designed to deflect the force of the flow and keep it from chewing up the reservoir bottom.

"During a storm, when the flow come through the tunnel, it's *huge* force," said Awad. "You need the structure to be stable. This concrete slab will be 6-feet thick; it will diffuse the energy."

The water will only be held temporarily at the reservoir; it'll flow by gravity to the Calumet Treatment Plant. Last year, the MWRD extracted 200,000 tons of what it tastefully calls "biosolids" — fertilizer that ends up on park district golf courses and athletic fields.

Back at the office, since one doesn't often get the chance, I phoned Hanson Materials to ask about gravel.



Thornton Quarry | Neil Steinberg/Sun-Times

"Our biggest customers are concrete and asphalt producers," said Bob Sapp, the quarry's plant superintendent, who has worked there 27 years. "We're continuing to mine it, and have many years of reserves left."

I wondered what is the most interesting part of mining gravel.

"What we're mining is 420 million years old," he said. "This used to be an old coral reef. We find fossils of sea life."

You can see the layers of rock formed over the millennia. For now.

"We're hoping that this summer that we're going to get water in here," Spyropoulos said.

Until the water starts flowing, however, the MWRD is taking groups to see the dry reservoir.

Various delegations from neighboring communities have visited, and Spyropoulos said that if interested groups contact her office, it will arrange a tour. I carefully explained, several times,

that if you put a thing like that in the paper, people will actually do it. But she insisted that's OK. So for next month or so, now's your chance. Because it'll be under water a long, long time. Though if you do go, a word of advice: Bring sturdy boots. Because Brad Sutter won't let you in otherwise.

To schedule a tour, contact the MWRD Office of Public Affairs at tours@mwrld.org or phone 312-751-6633.

<http://chicago.suntimes.com/neil-steinberg/7/71/588906/thornton-quarry-grand-canyon-south-suburbs-will-soon-underwater>

"Chicago is hoping to retire the word 'waste,'" *New City*

Full article text: When it comes to managing city sewage, Chicago is hoping to redefine the word waste. The Metropolitan Water Reclamation District of Greater Chicago's new five-year strategic plan expands on the work the agency has been doing on everything from flood mitigation to infrastructure maintenance, and focuses on making wastewater management more productive.

"The vision statement is 'Recovering Resources, Transforming Water.' There are four resources the District is targeting in the plan," David St. Pierre, executive director, says. The four resources are phosphorus, class A biosolids, energy and water. "These four valuable resources are our current recoverable targets. We anticipate algae coming into view in the near future." In essence, the District aims to "harvest" useful nutrients (or, "resources") during wastewater processing — and put them to good use. The District is building the largest phosphorus recovery facility in the world at the Stickney Water Reclamation Plant, which will be ready to go by this September. Nutrients, such as phosphorus, are otherwise discarded during treatment. Instead St. Pierre says the new approach will recover tons of eco-friendly fertilizer. A Vancouver-based company called Ostara has partnered with the District, and according to its website, what comes out is "a high-grade, slow-release end-product that Ostara harvests, dries, packages and markets as a commercial fertilizer."

"This technology will transform these nutrients into an environmentally responsible fertilizer," St. Pierre said in a press release when the plant was first announced. "It will recover a nonrenewable resource, improve our water environment and provide a return on investment for our ratepayers. It is definitely a win-win-win."

Some other plants use this technology, but St. Pierre says that Chicago's will be the biggest. All of this, he says, is moving Chicago in the direction of a zero waste model. "Chicago is adopting the view that all resources are valuable and should be reused," St. Pierre says. "We are trying to create a paradigm where the word 'waste' is retired from the common vocabulary."

Facing the effects of climate change, such as flooding and rising sea levels, many cities are looking for ways to revamp with resilient infrastructure. While Chicago might not come to mind as easily as the likes of New York, the Midwest city is in preparation mode. As WBEZ reported last year, Chicago could even be a future refuge:

As University of Chicago Law Professor David Weisbach said, however, the Chicago area might be well-positioned to handle newcomers and other unforeseen impacts.

"We have a temperate environment. We have a highly diversified economy — it's not dependent on any one sector. We have a stable fresh water supply," Weisbach said. "If you think about what the effects of climate change will be in Chicago, it's going to be the knock-on effects. We're connected to the rest of the world, and what matters to the rest of the world matters to us. That will affect us potentially very, very deeply."

<http://nextcity.org/daily/entry/chicago-wastewater-management-water-treatment>

"MWRD Sustainable Landscaping and Biosolids Applications are Due," *South Suburban Mayors and Managers Association*

Reprint of the MWRD's press release of June 9, 2015: "MWRD seeks applicants for Sustainable Landscaping and Biosolids User awards; Applications due June 28, 2015"

3rd Quarter = 5 items

"IWEA Members Contribute to WEFTEC Program," IWEA

Full article text: Our members support WEFTEC by leading workshops and providing material for technical sessions:

Workshops

Laboratory Skills for the Treatment Plant Operator

IWEA Laboratory Committee, Sunday, 9/27, S540a

Activated Sludge and BNR Process Control: Hands On in the Real World

Microscopy: The Bugs

Auralene Toni Glymph, Sunday, 9/27, off-site

Communicating with Stakeholders: A Chicago Experience

You Just Can't Hide a **Biosolids** Program!

Lakhwinder Hundal, Saturday, 9/26, S503a

Maximizing the Potential of Your Mesophilic Anaerobic Digesters

Operating Procedures and Practical Concerns

"Does Your Park Stink? Chicago Parks Using Human Poop to Keep Grass Green," WGN Radio (IL)

Full article text: Neighbors near Winnemac Park have noticed a certain aroma—described as a "kitty litter box" smell by some—emanating from the green space recently.

Hey, don't go throwing shade on cats. This is a pure case of he who smelt it, dealt it.

That's human poo creating the stink.

More accurately, it's an organic fertilizer known as **biosolids** produced by the Metropolitan Water Reclamation District.

The material is created by removing solids from the city's waste stream and treating them to eliminate bacteria, parasites and other pathogens.

The result is a fertilizer that looks like dirt and is rich in plant nutrients including nitrogen and phosphorus.

"We have seen great results from it in terms of the health of the grass," said Chicago Park District spokeswoman Jessica Maxey-Faulkner.

The **biosolids** are routinely spread at a number of parks, she added

According to the MWRD, the **biosolids** "meet all regulatory safety standards for direct contact."

An FAQ provided by the Environmental Protection Agency, which regulates **biosolids**, says they're used in all 50 states and have been recycled by gardeners and farmers "for ages."

"Thirty years ago, thousands of American cities dumped their raw sewage directly into the nation's rivers, lakes, and bays," the FAQ states. "Through regulation of this dumping, local governments are now required to ... recycle **biosolids** as fertilizer, incinerate it, or bury it in a landfill."

Chicago has opted to not let your waste go to waste.

<http://wgnradio.com/tag/metropolitan-water-reclamation-district/>

"City Using Human Waste to Fertilize Public Park," KHQ Q6 (IL)

Full article text: People in Chicago have recently noticed a strange aroma coming from one of their local parks. It turns out, the city is using a unique method to keep the grass green: human waste. The Metropolitan Water Reclamation District actually creates the specialized fertilizer, also known as **Biosolids**. The MWRD produces **Biosolids** from treated solids that have been

removed from municipal wastewater. They say **Biosolids** make landscapes much greener and healthier, and in the long run, it could be more cost effective than chemical fertilizer.

<http://www.khq.com/story/29755743/video-city-using-human-waste-to-fertilize-public-park>

"What Smells in Chicago Parks," WFLA (IL)

Full article text: Visitors in Chicago parks started noticing weird smell in the grassy areas which seemed a little unusual to them. NBC Chicago got to the stinky bottom of the story.

Some visitors told NBC Chicago it smelled like mushrooms, others said it smelled like something chemically refined. The visitors were surprised to learn that what they smelled was the new fertilizer the city was using to keep the parks greener. That fertilizer had an ingredient that made some cringe – it was human waste.

"At first I had a reaction of like oh no don't tell me that while I am lying on the ground," Iggy Ladden, a visitor, told NBC Chicago.

Chicago's Metropolitan Water Reclamation District creates that fertilizer called '**biosolids**' out of the treated solids from municipal wastewater, according to NBC Chicago. It is used on farm fields, golf course and many other places, MWRD representative said. The **biosolids** make the grass much greener and healthier, and can actually be more cost-efficient in the long run, according to NBC Chicago.

Some visitors actually found it smart to use the waste in a productive way.

<http://wfla.com/2015/08/10/what-smells-in-chicago-parks/>

"How Do Chicago Parks Keep Their Grass So Green? Human Poop," Chicagoist (IL)

Full article text: Chicago parks have gone to—well, you know the saying.

The Park District has started using an organic fertilizer that is one part last night's dinner. Yep, these so-called '**biosolids**,' produced by the Metropolitan Water Reclamation District, are created by extracting and treating solid particles from the city's waste stream (a.k.a. human waste) for a natural compound loaded with nitrogen and phosphorous. Just what healthy plants need. We know what you're thinking. but before reading about this, you probably couldn't tell the difference. The fertilizer looks just like dirt, and as far as the smell goes, residents near Lincoln Square's Winnemac Park, where the mixture is often used, describe it as having a rather kitty litter box-type odor, according to DNA info. We're not sure how kitty droplets translate to human deuces, but that option sounds a whole lot prettier. In fact **biosolids** are nothing new. Gardeners and farmers have been using them "for ages" according to the article. And the Environmental Protection Agency, in charge of regulating them and making sure they are safe for contact, says they are cleared to be used in all 50 states. The agency even has an FAQ for those understandably freaked out by this phenomenon. But perhaps we shouldn't poo-poo it. "We have seen great results from it in terms of the health of the grass," Chicago Park District spokeswoman Jessica Maxey-Faulkner told DNAinfo. So when you use the bathroom, remember: Chicago's parks are counting on you.

http://chicagoist.com/2015/08/05/chicago_parks_give_a_crap_about_gre.php

"Does Your Park Stink? Chicago Parks Using Human Poop to Keep Grass Green," DNA Info, NBC Chicago (IL)

Summary: Organic fertilizer known as **biosolids** produced by the Metropolitan Water Reclamation District is created by removing solids from the city's waste stream and treating them to eliminate bacteria, parasites and other pathogens. The result is a fertilizer that looks like dirt and is rich in plant nutrients including nitrogen and phosphorus.

"We have seen great results from it in terms of the health of the grass," said Chicago Park District spokeswoman Jessica Maxey-Faulkner. The **biosolids** are routinely spread at a number of parks, she added.

According to the MWRD, the **biosolids** "meet all regulatory safety standards for direct contact."

An FAQ provided by the Environmental Protection Agency, which regulates **biosolids**, says they're used in all 50 states and have been recycled by gardeners and farmers "for ages." "Thirty years ago, thousands of American cities dumped their raw sewage directly into the nation's rivers, lakes, and bays," the FAQ states. "Through regulation of this dumping, local governments are now required to ... recycle **biosolids** as fertilizer, incinerate it, or bury it in a landfill." Chicago has opted to not let your waste go to waste.

<http://www.dnainfo.com/chicago/20150804/lincoln-square/does-your-park-stink-thats-because-your-poop-is-keeping-grass-green>

<http://www.nbcchicago.com/news/local/Chicago-Parks-Use-Fertilizer-Made-From-Human-Poop-to-Keep-Grass-Healthy-320638932.html>

"**Biosolids Law**," *Chicago Tribune (opinion) (IL)*

Government now has a chance to make sure our waste doesn't go to waste, thanks to a new state law passed this year to promote the smarter use of **biosolids**. New technological processes, known as "resource recovery," allow for these by-products of the wastewater treatment process to be reused as fertilizer which can then be applied to promote more productive soils. State law, however, was not keeping pace with new science. This spring, we coordinated the push at the Capitol for House Bill 1445, signed into law recently by Gov. Rauner, which allows higher-quality **biosolids** from our wastewater and sewage to be cleaned and turned into productive, marketable materials. This recent effort follows up on legislation passed in 2014 to allow the Metropolitan Water Reclamation District of Greater Chicago to enter into agreements to recover renewable resources from its operations, including **biosolids**. Not only can MWRD reduce its carbon footprint and be smarter environmentally with biosolid renewables, but it makes sense economically. There will be an estimated \$10 million to \$15 million reduction in the overall annual cost of processing and disposing this waste – money that does not have to come from taxpayers. Federal regulations recognized the importance of biosolid repurposing, but state law still considered it a pollutant. By changing the law to match the federal approach, we're embracing the **biosolids** as an agricultural asset – a key component of Illinois' economy – and setting the right example for environmentally-friendly water resource management. We're committed to continue working together on innovative ways to move our state forward, even when it means putting our waste back to work for us.

—*State Rep. Elaine Nekritz, D-Northbrook*

—*Debra Shore, Commissioner, Metropolitan Water Reclamation District (MWRD), Skokie*
<http://my.chicagotribune.com#>

"**Need to Build an Effective Communication Plan for Your Biosolids Program? WEFTEC Has the Solution**," *WEF*

Full article text: While there are many excellent **biosolids** programs across the country, effective communication in these programs can continue to be a challenge. A communications crisis can derail a safe, successful **biosolids** program.

Workshop 09 (Sat., Sept. 26, 8:30 a.m. to 5:00 p.m.): You Can't Hide a Biosolids Program! (But You Can Communicate It...) addresses the gap that can exist in **biosolids** programs between technical excellence and communications excellence.

Learn Key Lessons from Diverse Case Studies

Case studies, utility response and lessons learned, from various geographic regions will be presented, followed by breakout sessions designed to delve deeper into the information presented, within a small group.

Experience Innovative Approaches to Communication and Branding

King County (Seattle area) **biosolids** program will showcase the advantages of the innovative approach to their "loop" **biosolids** branding efforts.

Effectively Interact with the Media and Start to Build a Communications Road Map

Communications Manager for San Francisco and a freelance reporter will present practical advice on how to interact with the media, followed by breakout sessions designed to assist attendees in developing their own **biosolids** communications road map.

Speakers

Natalie Sierra, Brown and Caldwell

Kevin Litwiler, Lystek

Lakhwinder Hundal, MWRD

Kate Kurtz, King County DNR Wastewater Treatment Division

Rachel Cernansky, Freelance Journalist

Tyrone Jue, San Francisco Public Utilities Commission

The Water Environment Federation and the Water Environment Research Foundation are pleased to jointly present this workshop through the pre-eminent experts who are using the latest research.

<http://www.wef.org/Conferences/page.aspx?id=113>

"Recovering Phosphorus Nutrients for Reuse," *American Infrastructure Magazine*



The Metropolitan Water Reclamation District of Greater Chicago (MWRD) endeavors to protect the source of their drinking water, improve the quality of the area's waterways and manage water as a vital resource for the area.

Their new phosphorus recovery facility is an ongoing project that proactively counteracts anticipated limitations for nutrients. Phosphorus is a non-renewable resource essential for life and its limited availability has become a growing global issue. Sourced from rock mines, phosphorus is transported considerable distances for distribution. Unfortunately, it is estimated that there are fewer than 100 years' worth of phosphorus reserves remaining worldwide. When used in excess, the discharging into waterways can be detrimental to water quality in addition to dead zones. One of the largest dead

zones is in the Gulf of Mexico, covering an area the size of New Jersey and growing exponentially over the past several decades. The U.S. Environmental Protection Agency mandates require Illinois to reduce phosphorus runoff by 45 percent and the MWRD will achieve 20 percent of the state's 45 percent reduction goal when fully operational in 2017.

"Managing the overabundance of phosphorus and nitrogen in our waterways is a challenge shared by all sectors of society," said MWRD President Mariyana Spyropoulos. "With the installation of a nutrient recovery facility at the Stickney Water Reclamation Plant (WRP), the District is committed to advancing a long term, sustainable solution."

With the approval of the Board of Commissioners, the MWRD entered an agreement with Black and Veatch Construction, Inc., (B&V) for the facility design on June 6, 2013, and construction for September 3, 2014.



Part of the proposed compliance schedule was the installation of a sidestream phosphorus recovery system, aiding in the removal of phosphorus from the centrifuge centrate recycle stream. The facility recovers phosphorus and roughly 15 percent of the nitrogen, as ammonia, from the process stream treated to form the product.

The combination of this and the enhanced biological phosphorus removal will result in lower effluent limitation over time. Most importantly, this process will recover phosphorus and make it available for reuse.

"The MWRD's decision to install a nutrient recovery facility is at the forefront of a growing trend we're seeing within the wastewater treatment sector," said F. Phillip Abrary, President and CEO of Ostara, the company behind the innovative technology used. "Increasingly, these utilities see themselves as more than simply water treatment plants. Rather, they are resource recovery centers, recycling water, energy and nutrients for beneficial reuse. Our technology helps them fulfill this mandate by recovering phosphorus and nitrogen in a way that is both economically and environmentally sustainable."

This new process will result in 1,150 tons of phosphorus removed each year from the waste stream at the Stickney WRP, the largest facility of its kind in the world. The Stickney WRP serves 2.3 million people, treats a 260-square-mile area including the central part of Chicago and 46 suburban communities, and covers 413 acres. With anticipated regulatory limitations for nutrients, the MWRD was proactive in voluntarily accepting a 1.0 milligram/ liter limitation for total phosphorus in its next permit at the Stickney WRP. This permit included a compliance schedule to meet that limitation.



The first treatment included coarse screens, fine screens, grit removal and primary treatment, followed by the secondary treatment and then discharged to the Chicago Sanitary and Ship Canal. For solids, primary sludge will be screened and concentrated utilizing gravity concentration tanks, waste activate sludge will be thickened utilizing centrifuges. These solids streams are then combined and anaerobically digested. The remainder is sent to multiple outlets including a pelletizer facility, farm land application, solids lagoons for aging or solids drying areas for air drying centrifuges for further dewatering. The aged solids from the lagoons is further air dried on solids drying areas prior to beneficially utilizing. Various recycle streams called centrates from the various processes are returned to the headworks of the Stickney WRP. This construction made available over 200 jobs and required over 44,000 man hours of skilled trade expertise. As the MWRD moves from a waste paradigm to a resource paradigm, they are evolving into a resource recovery agency through water recovery and reuse, influencing future builds in infrastructure throughout America. The MWRD works to maximize Cook County taxpayer dollars, including a 15-year return on investment. This project is one of many underway that anticipates a considerable return on investment, in addition to anticipating future situations where a similar impact can be made. The MWRD is working on energy neutrality by increasing biogas utilization and implementing nutrient removal and recovery. Additionally, through better control of the treatment processes they will be able to reduce and make most efficient use of utilities, such as electricity and natural gas. Devon Douglas is the Assistant Editor for American Infrastructure magazine. She may be reached at devon@penpubinc.com. <http://americaninfrastructuremag.com/article/recovering-phosphorus-nutrients-reuse>

4th Quarter

"4 Studies to Investigate Recovery of Valuable Resources from Wastewater," *Water Tech Online*

Four new studies announced by scientific research organization the Water Environment Research Foundation (WERF) will investigate how we can recover more valuable resources from wastewater during the treatment cycle. The second project aims to significantly expand the use of **biosolids** by defining the standards and specifications needed for WRRFs to cost-effectively produce and more successfully market high-quality, safe and stable **biosolids**, stated the release. The research team, led by environmental consulting firm Material Matters Inc., will develop a guidance tool for identifying and assessing markets for high-quality **biosolids**. WERF is also expanding the research further afield by partnering with water utilities affiliated with the Water Services Association of Australia and Water New Zealand. The Pima County Regional Wastewater Reclamation Department will undertake the third project, establishing the feasibility of using residual gas (primarily CO₂) following methane recovery to control struvite formation in WRRFs, reported the release. Researchers will also develop a protocol for implementation of similar struvite control methods at other WRRFs. The Metropolitan Water Reclamation District of Greater Chicago and CH2M will collaborate with WERF on this study. The final project aims to support municipalities seeking cost-effective and sustainable **biosolids** treatments for Class A designation, shared the release. The work, carried out by Michigan Technological University, complements another ongoing WERF project by measuring and standardizing methods to predict pathogen reduction.

<http://www.watertechonline.com/4-studies-to-investigate-recovery-of-valuable-resources-from-wastewater/>

"Greener and Cleaner: MWRD Aims for Better Service, Lower Costs," *Desplaines Valley News (IL)*



Full article text: When people in the Chicago area flush their toilets and don't worry or even think about what happens next, Brett Garelli and Joe Cummings take it as a compliment.

Both are veteran leaders at the Metropolitan Water Reclamation District of Greater Chicago's filtration plant at Stickney, an international marvel when it was built in 1939 and still considered by most measures the world's largest conventional wastewater treatment—drawing visitors every year from around the world to study MWRD methods. Like many MWRD employees, the two men have made careers out of wastewater treatment. Garelli, the plant manager, has worked for the district for 29 years; Cummings, the assistant operations manager, for 17. "When you flush your toilet, for example, that goes into your local sewer system, which then connects to a district interceptor system, which in turn connect to this plant—and this is the largest of seven plants owned by the district," Cummings explained on a recent tour of the plant, located at Pershing Road and Austin Avenue.

"The wastewater is put through a series of physical and biological processes," he continued. "It is screened (put through huge strainers to remove the largest chunks of debris), and then the sewage is pumped up high, so that throughout the rest of the treatment process, everything flows downward with the help of gravity."

The sewage is then fed into then aerated grit tanks, where rocks, pebbles and other things settle at the bottom and are removed to a landfill. Next the sewage goes into a primary tank, where biosolids settle to bottom and then are further processed. Fats oils and greases are skimmed off the top and go into a landfill. After those initial physical filtration steps, the biological process begins. Bacteria are added to basically eat much of the remaining sludge, and what remains is fed to final tanks, where remaining organic matter settles to the bottom. From there, centrifuges and other devices are used to spin matter into bio-solids cake that is used as fertilizer. Throughout, the idea is to purify the water as much as possible. While the remaining water (or effluent) is not even close to being drinkable, it is sufficiently safe to release back into local waterways, where nature continues the filtration process.

MWRD Board of Commissioners President Mariyana T. Spyropoulos, first appointed to fill a vacancy by then-Gov. Pat Quinn and then elected by voters in 2010, said she enjoys her leadership role at an agency with such an important mission. "We're doing good work every day," she said. "What's more, we're moving in an environmentally sound direction with more sustainability."

She noted that the district is always looking for new revenue streams, such as selling its biosolids on the open market, establishing a partnership with a private company that is removing phosphorous from wastewater, and even possibly selling its effluent to agencies that can use non-drinkable water.

"You don't need potable water to water a golf course," she said, citing just one example of creative thinking designed to deliver better public service at a lower cost to taxpayers. Most visitors are impressed with the process, MWRD officials say, but all are wowed by the volume the Stickney plant handles.

"On an average day, we treat about 600 million gallons of wastewater, up to 1.4 billion gallons on peak days," Cummings noted.

The district serves an area of 883 square miles, which includes the Chicago and 125 suburbs. It serves more than 5 million people, and the district's 554 miles of intercepting sewers and force mains range in size from 12 inches to 27 feet in diameter. They are fed by approximately 10,000 local sewer system connections.

There are at least a few multi-generational stories at the Stickney plant, and Garelli's is one.

"My dad worked at this plant," said Garelli, who grew up in Lombard. "He had some great stories, like how they burned coal here and generated their own electricity.

"I'll say this," he added. "It's great to work here. It's a good place, a good work culture here. There aren't many places left like this."

He said he'd like his children pursue careers in science, as he did, and work at the MWRD. Cummings' son is not yet at that crossroads.

"He's just 6 years old," Cummings smiled "If you ask him what happens to the water when you

wash your hands or flush your toilet, he'll say, 'It goes to Poppy's work.' He's too young to know exactly what I do here, but at home he sees me sweeping leaves off the sewer grate in the street. I think he thinks that's what I do all day at work," he added with a smile.

"The Next State of Treatment: Water Resource Recovery," *Water Online*

David St. Pierre takes "waste" out of the term "wastewater," leading by example as executive director of the Metropolitan Water Reclamation District of Greater Chicago (MWRD). Here he shares MWRD's initiatives and his vision of the future.

Full article text: David St. Pierre, in this exclusive Water Online Radio interview, was asked to describe the transition from wastewater treatment plant (WWTP) to water resource recovery facility (WWRF). The following is a small portion of his commentary, which can be heard in full below. "For years and years, we've always thought about utilities as taking in water, cleaning that water, protecting the environment. But this seed is going to grow into something that I don't think any of us [can] imagine right now. As that door cracks open and begins to permeate a little bit of light into the utility world, it's going to bust open and absolutely change the environment that we're in today..."

"Resource recovery is going to be at the forefront of what we do. We're starting out with these [resource recovery projects] that we've dabbled in for years—energy, we've had digesters. We're accelerating that and we're taking in food organics now, and we're producing more energy. We have biosolids products that we've produced for years. That's a part of it. We're putting in the largest phosphorus recovery facility in the world in Chicago ... but that's scratching the surface. We're looking at an algae process that can actually clean water and provide revenue far beyond what we take in, in terms of our user rates. That's what's transformational about this thought and this idea. We haven't really explored the value of the water that we are keepers of. Just that possibility ... that little shift in thinking is going to explode this industry."



David St. Pierre, MWRD Executive Director, interviewed by Water Online Radio interview during WEFTEC.

<http://www.wateronline.com/doc/the-next-stage-of-treatment-water-resource-recovery-0001>

"A Rosier Future for Montreal's Sewage?" *Montreal Gazette (Canada)*



A city worker climbs onto the huge bank of racks that dry the sludge created as millions of litres of waste water are cleaned daily at the Montreal sewage treatment facility, one of the largest single facilities in the world, seen Friday Nov. 23, 2007.

Full article text: Where most see sewage, Sylvain Ouellet sees black gold.

Every year, Montreal incinerates 267,000 tonnes of sewage sludge, the muddy substance left over after the city's mammoth waste water treatment plant filters the solids from the sewage water, product of our toilets, storm drains and snow dumps. What remains is 45,000 tonnes of ashes, dumped in a landfill, and copious amounts of global warming gases. The plant's incinerator produces a quarter of all the greenhouse gases emitted by city operations, said Ouellet, the environmental critic for municipal opposition party Projet Montréal.

Rather than burning or dumping it, **Chicago** has been drying all of its sludge for more than 30 years, creating **biosolids**, similar to topsoil but richer in nutrients, that is given for free to build parks and to restore old mining properties, or converted into fertilizer pellets for retail sale. Milwaukee has been selling its sewage sludge since 1925, creating a fertilizer known as Milorganite sold to farmers, golf courses and homeowners. Saguenay sends most of its treated sludge to farmers' fields. Other municipalities collect the methane gas to produce energy. Montreal uses a portion of the heat created in the incineration process to warm its waste water plant, saving about \$2 million a year in energy costs. But the city could be doing much more, Ouellet says.

"Several cities, such as Chicago, have already understood the potential of this sludge, notably in terms of recovering phosphorous (to use as a fertilizer), for energy production or using the fertilizer potential of **biosolids**," he said.

In 2020, Montreal's waste water plant incinerator will be at the end of its useful life. The cost of replacing it is roughly a quarter of a billion dollars. Because of the complexity surrounding the reuse of sewage sludge, the city needs to open the discussion to public consultation now, Ouellet argues. As an example of how long the process can take, he said, Montreal expects to have city-wide composting in place by 2019—11 years after it first started looking into the idea. "We have a chance now to create locally a green economy by taking the time to reflect on how we want to use our sewage sludge," Ouellet said. "There is enormous economic potential that

we would be crazy not to exploit. But to do so, we have to avoid the trap of simplicity, that would direct us to just rebuild a similar incinerator.”

Reusing sewage sludge efficiently and cost-effectively is complicated, in part because many balk at the idea of spreading something derived from human feces on their fields or vegetable gardens. Converting sewage sludge to agriculture grade **biosolids** can be either **very costly**, as Chicago has learned, or requires large amounts of time and space for drying lagoons where the sludge must air out for up to two years. Chicago’s drying areas cover more than 93 acres.

Montreal’s sub-zero winter climate would pose challenges to the drying process as well.

Mention the idea to Richard Fontaine, the director of Montreal’s waste water division, and he rolls his eyes. Montreal’s plant bills itself as the third largest in the world, and deals with too much sludge to convert it all into **biosolids** to be used as topsoil, he told the Montreal Gazette.

“It’s a complex issue, and there is a lot of study required,” he said.

There is also the issue of harmful pathogens and metals found in sewage run-off, particularly in a city like Montreal with numerous industries and pharmaceutical companies.

“Some of the recent studies now show there is very low risk in land-applied **biosolids**, so there is no human or environmental risk from bacteria,” said Dr. Bu Lam, manager of municipal programs for the Canadian Water Network, a government funded organization of researchers specializing in water management. “In terms of emerging substances (such as those found in personal care products or pharmaceuticals), there is not a whole lot of literature or background research on the topic yet. ... So with **biosolids**, the question becomes, what happens if some of those substances accumulate (over years or decades)—will it have an impact on the environment and the organisms in the environment.”

In Chicago, lawmakers created legislation forcing industries to remove heavy metals like mercury and lead and other pathogens from their waste water before dumping it in the sewage system, so the **biosolids** wouldn’t be contaminated.

For most municipalities, there is rarely a one-size fits all approach, Lam said. Partial composting, partial landfill application and part energy recapture is sometimes the most prudent bet. In Canada, roughly a third of municipal sewage sludge is incinerated, a third is landfilled, and the other third is spread on agricultural fields, Lam said. In Quebec, one-third is spread on agricultural land, 22 per cent is put in landfills and 48 per cent is incinerated, particularly in large cities like Montreal, Quebec and Longueuil, according to a 2012 study by environmental research agency Irstea. In France, 70 per cent of sludge is spread on fields.

The City of Montreal declined a request for an interview on the topic. In October, city council rejected Projet Montréal’s motion for a public consultation because officials said the city is already studying the issue and planning consultations. There can’t be just one solution, councillor Jean-François Parenteau said during October’s council meeting.

The Montreal Metropolitan Community’s environmental commission will hold a public consultation as part of the Montreal regional plan on managing garbage and recyclables and sludge, which is slated for publication in the spring. The city’s standing committee on water, the environment and sustainable development is also holding a public consultation on the plan, and will be studying the issue in the fall of 2016.

Ouellet worries it’s not soon enough.

“If we want advanced technologies, we need to be asking the questions right now,” he said.

<http://montrealgazette.com/news/local-news/a-rosier-future-for-montreals-sewage>

“How Chicago Turns Sewage into Topsoil,” *Montreal Gazette (Canada)*

How Chicago turns its sewage into topsoil

RUNE BRUMMER
MONTREAL GAZETTE

Greater Chicago has been converting its sewage sludge into biosolids for use as soil enhancer on farmers' fields, golf courses and parks for more than 30 years. It cleared a major hurdle last month when Illinois passed a bill allowing the city's biosolids to be sold to the public to use on lawns and vegetable gardens.

Scientists at the Metropolitan Water Reclamation District of Greater Chicago (MWRD), a government entity separate from the city of Chicago that manages the region's waste water, say the converted sludge improves the sustainability of ground soils, stimulates plant growth and lasts three to five years longer than regular chemical fertilizers, at a fraction of the cost. The MWRD gives it away to farmers and more than 50 parks in the Chicago area used it in 2015. Stringent testing to make sure it lives up to the United States' Environmental Protection Agency standards ensures it's safe, even if children eat it.

To produce it, the MWRD removes the solids from waste water, then deposits them in dozens of underground "digesters" for 25 to 50 days. The heat is kept at 30C to destroy pathogens, making them into biosolids. The greyish-black biosolids are dried either in centrifuges or by sitting in lagoons for 18 months, and then air-dried on paved surfaces for another few months. Air-dried biosolids look like topsoil, composted biosolids look like standard compost, and by this time in the production process, there is no more human excrement in the product, scientists say.

Even municipalities with biosolids experience can falter, however. Chicago's foray into creating a giant, 60-foot tall sewage-cooking machine run by a private corporation that would speed up the drying process and allow the sale of fertilizer to private markets ended up being 10 years late and 40 per cent over its projected operating budget due to increased energy costs. It is projected to cost taxpayers \$264 million in construction and operating costs over 20 years. But Manju Sharma, director of maintenance and operations for the MWRD, said the plant has become successful, transforming 40 per cent of the city's biosolids into marketable fertilizer pellets.

"It turned out to be an okay contract for us," she said.

Source: Metropolitan Water Reclamation District of Greater Chicago, *MetRII Reports Chicago*, *Chicago Tribune*



1 Waste water from the toilets, sinks and drains of homes and businesses in Chicago and 125 of its suburbs travels to one of seven waste water treatment plants via the sewer system. The solids are separated from the water. At this stage the solids are called **sludge**. [PHOTO: MWRD](#)



2 The sludge is sent to temperature-controlled digesters where microorganisms break them down in a process similar to composting. The substance that emerges from this stage is called **biosolids**. [PHOTO: MWRD](#)



3 After digesting, the biosolids are piped to centrifuges that work like a washing machine, spinning at high speeds to de-water the biosolids. These biosolids are then transported by train or truck to outdoor holding areas, while biosolids that are not de-watered by centrifuges are piped into lagoons. [PHOTO: MWRD](#)



4 Biosolids piped into lagoons are aged for additional thickening and stabilization, before being transported to drying pads. [PHOTO: MWRD](#)



5 The biosolids are then air-dried on paved pads to achieve a total solids content of approximately 50 per cent. Fecal coliform tests are then taken to verify Class A EPA standards prior to shipment. [PHOTO: MWRD](#)



6 Biosolids can be distributed almost anywhere chemical fertilizers would be employed and are used extensively in public spaces in the Chicago area, such as on golf courses, athletic fields, parks and recreational facilities. [PHOTO: MWRD](#)



7 The soil at Chicago's new 30-hectare **Maggie Daley Park** is mixed with biosolids. As a result the park's turf grass is healthier, more durable, and requires less maintenance. [PHOTO: MWRD](#)



8 Biosolids are also used in non-public spaces such as farm lands and former mine sites that are converted into agricultural land. [PHOTO: MWRD](#)

Rosier option for sewage

Projet Montréal looks to Chicago for example on best use for sludge

RENÉ BRUNNER
MONTREAL GAZETTE

Where most see sewage, Sylvain Ouellet sees black gold.

Every year, Montreal incinerates 367,000 tonnes of sewage sludge,

the muddy substance left over after the city's mammoth waste water treatment plant filters the solids from the sewage water, product of our toilets, storm drains and snow dumps. What remains is 45,000 tonnes of ash, dumped in

a landfill, and copious amounts of global warming gases. The plant's incinerator produces a quarter of all the greenhouse gases emitted by city operations, said Ouellet, the environmental critic for municipal opposition party Projet Montréal.

Rather than burning or dumping it, Chicago has been drying all of its sludge for more than 30 years, creating bio-solids, similar to topsoil but richer in nutrients. That is given

for free to build parks and to restore old mining properties, or converted into fertilizer pellets for retail sale.

Milwaukee has been selling its sewage sludge since 1920, creating a fertilizer known as Milorganite sold to farmers, golf courses and homeowners. Saginaw sends most of its treated sludge to farmers' fields. Other municipalities collect the methane gas to produce energy. **SEE SLUDGE ON A4**

A4 TUESDAY, DECEMBER 9, 2013 MONTREAL GAZETTE

CITY

'Enormous economic potential'

12088 1000 A1

Montreal sees a portion of the best needed in the biorefinery process to water its waste water plant, saving about \$2 million a year in energy costs. But the city could be doing much more, Ouellet says.

Several cities, such as Chicago, have already understood the potential of the sludge, not only in terms of recovering phosphorus to be used as a fertilizer, for energy production or using the fertilizer instead of bio-solids," he said.

In 2006, Montreal's waste water plant mentioned will be at the end of the city's life. The cost of replacing the sewage treatment plant is \$1.5 billion. Because of the complexity surrounding the issue of sewage sludge, the city needs to open the discussion to public consultation now, Ouellet argues. As an example of how long the process can take, he said, Montreal expects to have city-wide composting in place by 2017 — 10 years after it first started looking into the idea.

"We have a chance now to create locally a green economy by taking the time to reflect on how we need to use our sewage sludge," Ouellet said. "There is enormous economic potential that we would be crazy not to exploit. But if we wait, we have a real risk of being completely out of the market as we just rebuild a similar incinerator."

Reusing sewage sludge efficiently and cost-effectively is required in part because many talk at the level of spreading something derived from human feces on their fields or vegetable gardens. Converting sewage sludge to agricultural grade



A city worker climbs onto the large tank of sludge that dry the sludge market an million of tons of waste water are cleaned daily at the Montreal sewage treatment facility. **AGENCE FRANCE PRESSE**

bio-solids can be either very costly, as Chicago has learned, or require large amounts of time and space for drying before where the sludge must sit out for up to two years. Chicago's drying area covers more than 10 acres. Montreal's sub-zero winter climate would pose additional challenges to the drying process as well.

Montreal's chief of the head of the plant, the director of Montreal's waste water division, and he will be in charge, Montreal's plant will be itself as the third largest in the world, so it deals with too much sludge to convert it all into bio-solids to be used as topsoil, he told the Montreal Gazette.

"It's a complex issue, and there

is a lot of study required," he said. There is also the issue of harmful pathogens and metals found in sewage run off, particularly in a city like Montreal with numerous laboratories and pharmaceutical companies.

"Some of the recent studies now show there is very low risk in land application," he said, so there is no barrier or environmental risk from bio-solids," said Dr. De La Roche, manager of municipal programs for the Canadian Water Network, government-funded organization of researchers specializing in water management. In terms of drying substances such as those found in personal care products

or pharmaceuticals, there is not a whole lot of literature or background research on the topic yet. So with bio-solids, the question becomes, what happens if there are these substances present in the waste water (or sludge) — will it have an impact on the environment and the response to the current need."

In Chicago, researchers created legislation giving municipalities to move heavy metals like mercury and lead and other pathogens from the waste water before recycling it in the sewage system, so the bio-solids wouldn't be contaminated. For most municipalities, there is rarely a one-size fits all approach, said Pauline Compagnon, par-

tial health applications and part energy receptors in comparison the most polluted but, in Canada, roughly 50 per cent of municipal sewage sludge is incinerated, a third is landfilled, and the other third is spread on agricultural fields, farm soil. In Quebec, one-third is spread on agricultural land, 22 per cent is put in landfills and 44 per cent is incinerated, particularly in large cities like Montreal, Quebec and Longueuil, according to a 2012 study by environmental research agency Inves. In France, 70 per cent of sludge is spread on fields.

The City of Montreal declared a request for information on bio-solids in October 2013 and rejected Projet Montréal's request for a public consultation because officials said the city is already studying the issue and planning consultations. There can't be just one solution, councillor Jean-François Perron said during a council meeting.

The Montreal Metropolitan Commission's environmental commission will hold a public consultation as part of the Montreal regional plan on managing garbage and recycled sewage sludge, which is slated for publication in the spring. The city's standing committee on water, the environment and sustainable development is also holding a public consultation on the plan, and will be studying the issue in the fall of 2014.

Ouellet worries it's not soon enough.

"If we wait advanced technologies, we might be using the question wrong now," he said. **RENÉ BRUNNER** is a Montreal-based writer and editor.

FROM SEWAGE SLUDGE TO PARK LAND

MONTREAL
GAZETTE

How Chicago is transforming biosolids into green spaces.

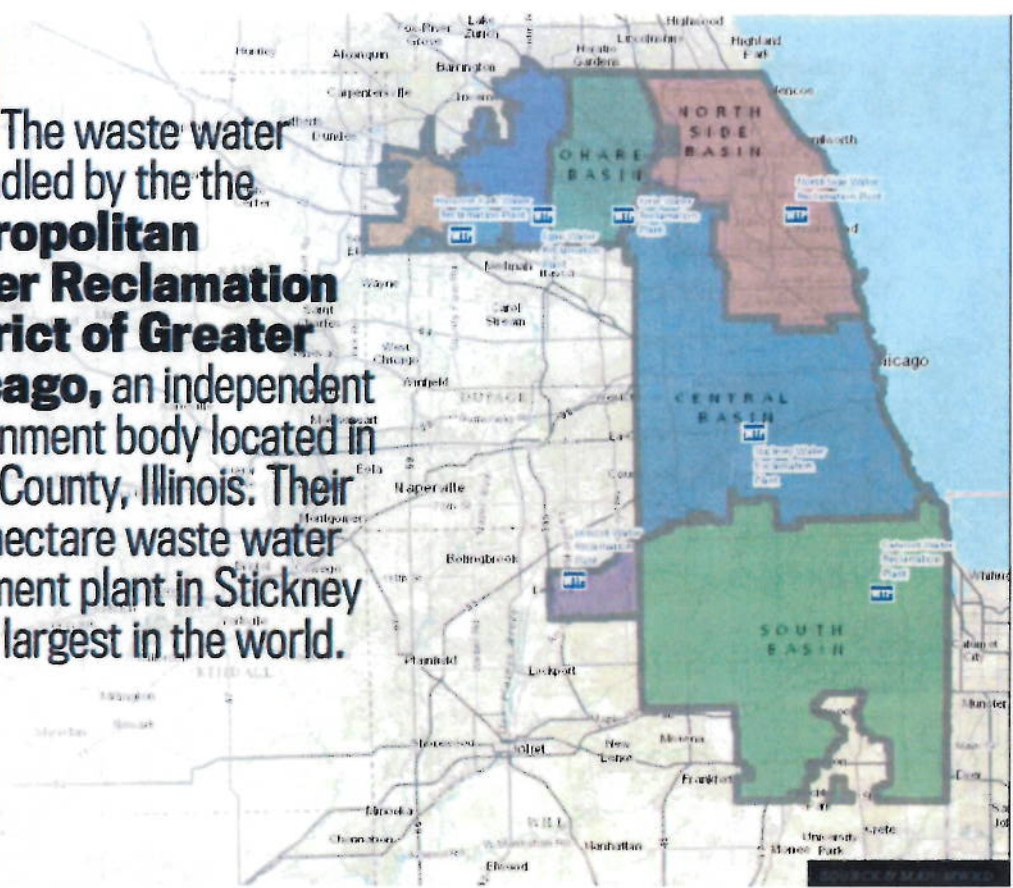


1 Waste water from the toilets, sinks and drains of homes and businesses in Chicago and 125 of its suburbs travels to one of seven waste water treatment plants via the sewer system. The solids are separated from the water. At this stage the solids are called **sludge**.



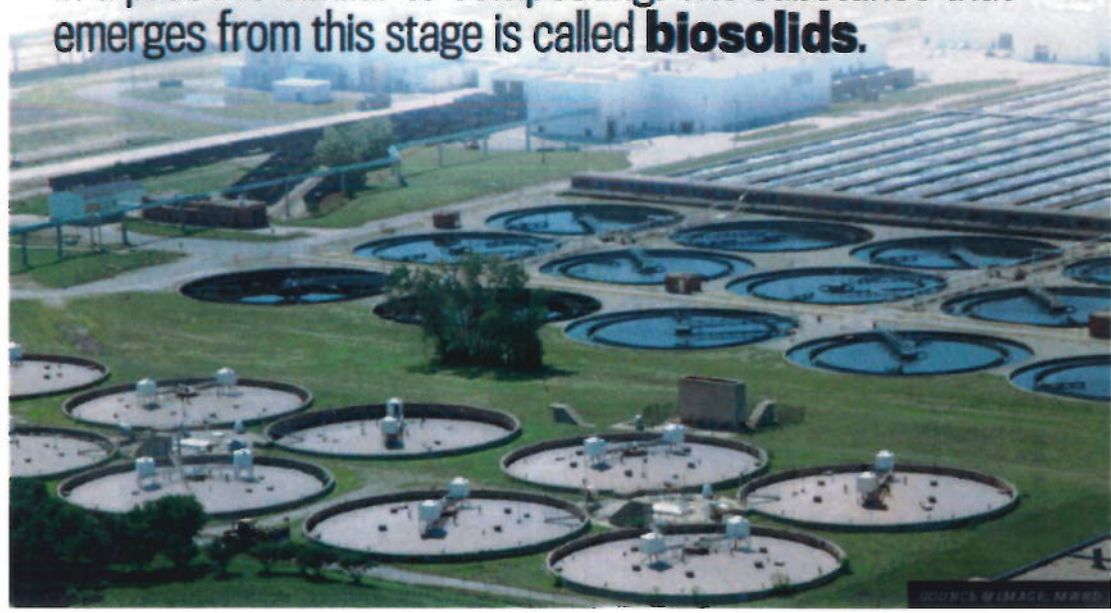
2

The waste water is handled by the the **Metropolitan Water Reclamation District of Greater Chicago**, an independent government body located in Cook County, Illinois. Their 230-hectare waste water treatment plant in Stickney is the largest in the world.



3

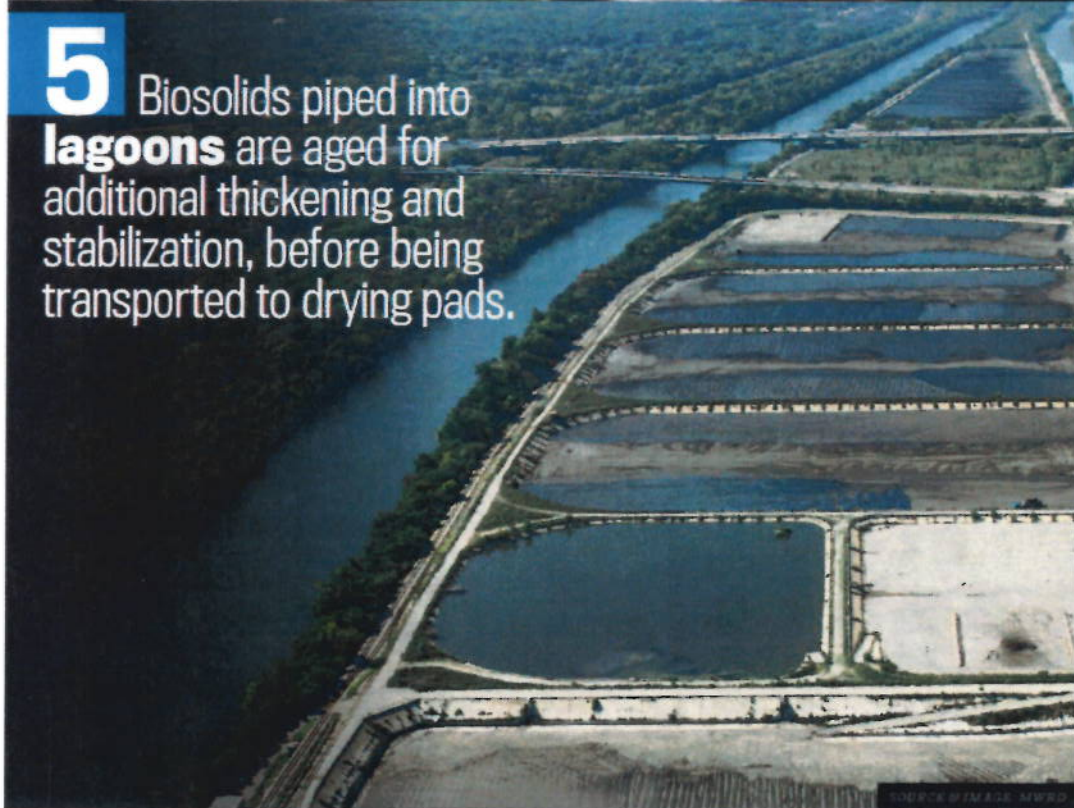
The sludge is sent to temperature-controlled **digesters** where microorganisms break them down in a process similar to composting. The substance that emerges from this stage is called **biosolids**.



4 After digesting, the biosolids are piped to **centrifuges** which work like a washing machine, spinning at high speeds to dewater the biosolids. Those biosolids are then transported by train or truck to outdoor holding areas, while the biosolids that are not dewatered by centrifuges are piped into lagoons.

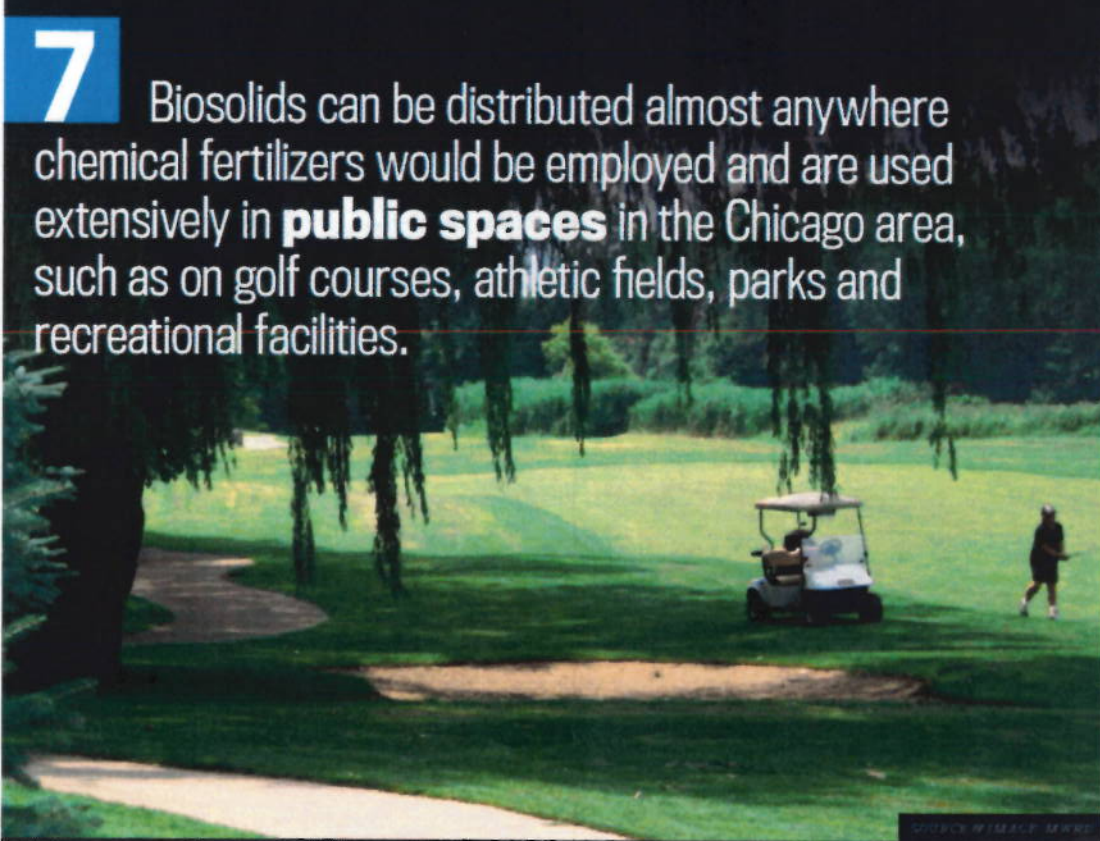


5 Biosolids piped into **lagoons** are aged for additional thickening and stabilization, before being transported to drying pads.





6 The biosolids are then air-dried on **paved pads** to achieve a total solids content of approximately 60%. Fecal Coliform tests are then taken to verify Class A EPA standards prior to shipment.



7 Biosolids can be distributed almost anywhere chemical fertilizers would be employed and are used extensively in **public spaces** in the Chicago area, such as on golf courses, athletic fields, parks and recreational facilities.

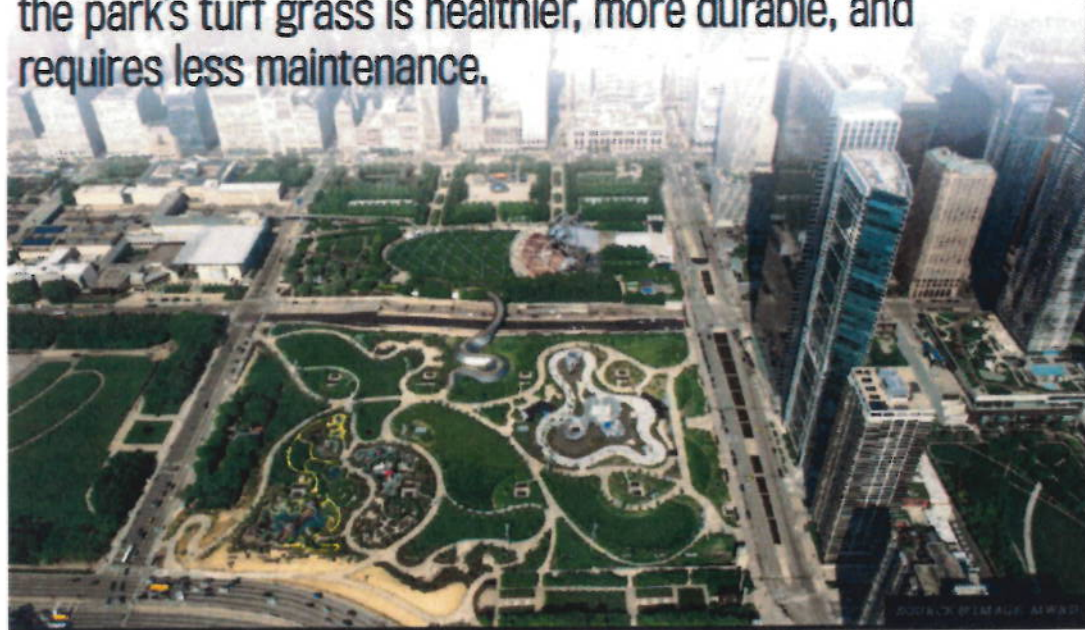


8

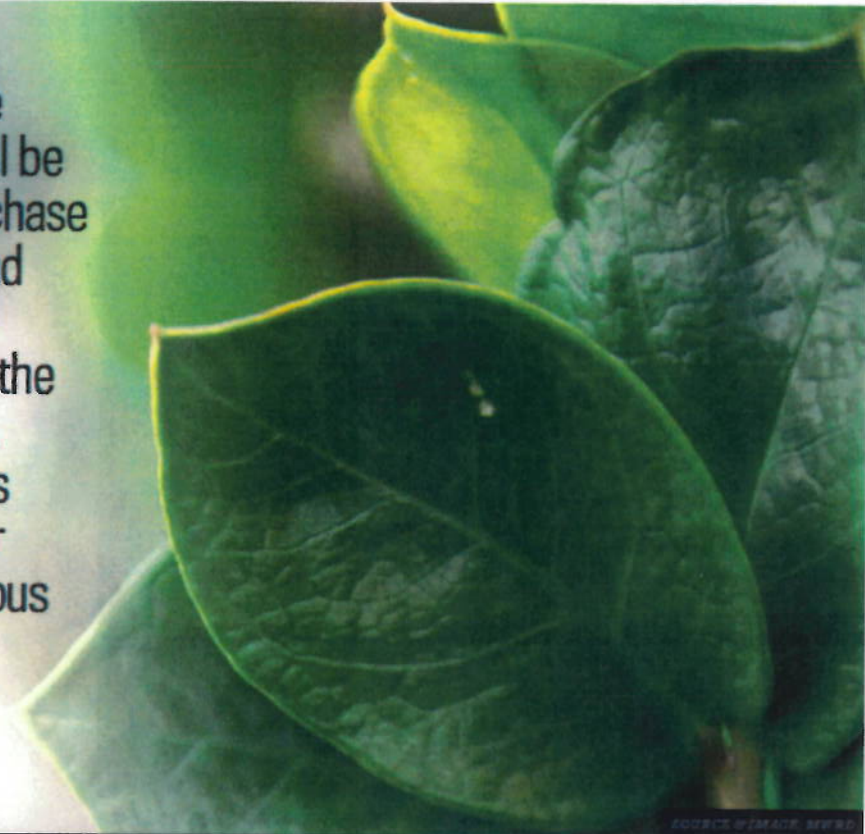
Biosolids are also used in **non-public spaces** such as farm lands and former mine sites that are converted into agricultural land.

9

The soil at Chicago's new 10-hectare **Maggie Daley Park** is mixed with biosolids. As a result the park's turf grass is healthier, more durable, and requires less maintenance.



10 The **public** will be able to purchase biosolids and composted biosolids in the near future. For now it is available for free at various Biosolids Processing Facilities.



\\Mustang\Gen Admin\PUBLIC\IN_THE_NEWS\15 1208_Biosolids Green Spaces_Montreal Gazette.pdf

“Flushed Resource Restores Ecosystem,” *American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Newswise, YubaNet, Phys.org, Science Codex, Florida Water Daily*



Basta and Dawn Busalacchi showcase a mound of **biosolids**—a nutrient-rich growing medium recycled from sewage.

Full article text: Every city has abandoned industrial sites. Encouraging life to return to these barren areas is a challenge. It requires a healthy topsoil for plants and animals to flourish. Cities, with their heavily compacted and often contaminated soils, often struggle to restore blighted spaces. Quality soil is necessary—but not abundant in cities. Enter **biosolids**. The Lake Calumet Cluster Site (LCCS) was the home of five U.S steel plants on the southeast side of Chicago. Now it's an 87-acre wasteland of glassy slag—a rocky byproduct of steel manufacturing.

"It's a mess," says Nick Basta, "Sixty percent of the land is bare rock."

The site used to be a wetland, but years of infill, dumping, and excavation has rendered the area inhospitable to plants and animals. It is on the EPA's national priority list. Over the last few years, the city has tried to restore the area. The hope is that it will become a stop for migratory birds along Lake Michigan's shoreline.

Restoration efforts of this scale are difficult. The original plan put forth by the restoration team was a two-inch layer of compost on the site. To Basta, this wasn't the answer.

"I love compost, but it's just not good enough," he said. A good soil provides the right combination of depth, nutrients, and texture to support bacteria, fungus, insects, and worms. Compost lacks essential plant nutrients, and is easily dispersed by rain and wind. A soil teeming with microscopic life is ideal for restoring plant and animal communities.



Aaron Mali (front) and Oulu Coquie (back) till biosolids into test plots, one of the first steps in transforming a blighted area into a functioning ecosystem.

Basta and his team from the School of Environment and Natural Resources at Ohio State University, along with Lakhwinder Hundal and Kuldip Kumar from the Chicago Metropolitan Water Reclamation District (MWRD), decided to manufacture their own soil with help from the nearby wastewater treatment plant.

Chicago's MWRD makes creative use of the enormous amount of waste Chicago generates. One example is **biosolids**—a rebirthing of sewage into a clean, pathogen-free, nutrient-dense growing material. Two years of physical, chemical, and biological treatment turns what was once sludge into a rich growing medium. These **biosolids** have a wealth of organic matter and are full of plant nutrients. It's an ideal base for diversity. In July 2015, Illinois legislation declared **biosolids** an approved resource for healthy lawns and growing crops.



Dawn Busalacchi and Jennifer Carlson scatter native seeds on test plots. The plots were designed to test which growing medium—compost or biosolids—worked best for supporting diverse ecosystems.

Basta and his team collaborated with MWRD to create a soil blend using biosolids. “We called it the dream treatment,” said Basta. They tilled it into test plots just outside the LCCS site.

Researchers created a second plot with compost—a thick, organic-rich material degraded from hardwood trees. The team scattered native plant seeds on both plots.

The biosolids plots proved to be the best home for healthy bacteria, fungus and plants—important indicators for a thriving ecosystem. Worms were happy in both the compost and biosolids plots.

“The next step is blending the biosolids and the compost,” said Basta.

The city of Chicago already uses biosolids for golf courses and baseball diamonds. Basta hopes that biosolids can restore the degraded surface area of LCCS, and the poor quality soils typical in Chicago’s dense urban areas.

“You have to bring in the soil,” said Basta. “Why not connect the dots and bring in what’s available locally?”

Read more about the “dream treatment” in a special section of the *Journal of Environmental Quality*, “Soil in the City.”

<https://www.agronomy.org/science-news/flushed-resource-restores-ecosystem>

<https://www.crops.org/science-news/flushed-resource-restores-ecosystem>

<https://www.soils.org/discover-soils/story/flushed-resource-restores-ecosystem>

<http://www.newswise.com/articles/flushed-resource-restores-ecosystem>

<http://yubanet.com/enviro/Flushed-resource-restores-ecosystem.php#.VmmTJ0uFPcs>

http://www.sciencecodex.com/flushed_resource_restores_ecosystem-171480

<http://floridawaterdaily.com/2015/12/10/soil-from-biosolids-aids-in-brownfield-remediation/>

<http://phys.org/news/2015-12-flushed-resource-ecosystem.html>

“Chicago’s Future with Smart Sewage Management to Power Future,” Citi IO



The Calumet plant, where MWRD will expand its anaerobic digester to save energy. The digesters are in the foreground. (Metropolitan Water Reclamation District)

Full article text: Chicago's wastewater authority plans to slash its energy bill by using bacteria to convert sewage into natural gas. There are a lot of things in the 1.2 billion gallons that pour through the world's largest water-treatment plant every day: grime swept off Chicago sidewalks, sewage scoured from thousands of miles of pipes—and enough energy to cut an annual \$50 million electricity bill to zero.

That's if engineers at Chicago's [Metropolitan Water Reclamation District](#) can achieve their goal to become energy neutral in the next eight years. The public agency has pledged, by 2023, to slash its energy consumption and produce whatever remaining power it needs onsite, becoming the largest wastewater treatment authority in the country to do so.

"There's more energy in the sewage that comes into a wastewater treatment plant than is required to treat it."

MWRD isn't the only sewage treatment agency doing this. DC Water and Hampton Roads Sanitation District in Virginia are also taking aggressive steps to recast wastewater as energy.

"There's more energy in the sewage that comes into a wastewater treatment plant than is required to treat it," according to Paul Kohl, a project manager for the Water Environment Research Foundation, an independent research organization. "We think we ought to be able to go ahead and get that back out." By some estimates, there's two to 10 times as much energy contained in wastewater as an agency needs to use to treat it.



While water treatment accounts for just 3 percent of total energy use in the United States, WERF points out that drinking water and wastewater plants can be a municipal government's largest energy consumers, eating up more than a third of the energy used by the public sector. Many treatment processes are energy intensive, from aerating huge vats of liquid with 3,000-horsepower blowers to pumping sludge out of the system so it can be recycled as "biosolids." And that economic incentive is a big reason why typically slow-moving public agencies like MWRD—which was sued by environmental groups before it started disinfecting the water it discharges into the Mississippi River system—are eager to invest in energy neutrality. Not only does it negate a \$50 million electricity bill (MWRD's biggest expense after payroll), it helps them hedge against future spikes in the cost of energy.

"Some people do it for the environmental benefit, but I was raised as a business person," says David St. Pierre, MWRD's executive director. "Having your own energy source, we can convert it to anything we need. So if the market drives costs, we can really kind of control that unforeseen cost of energy in the future."

The district already gets almost a third of its energy through anaerobic digestion: harvesting gas produced by special bacteria that help break down the noxious components of wastewater. But it plans to double down on that strategy, investing \$10 million to expand anaerobic digestion efforts at its Calumet plant on Chicago's South Side.

"The plan is to build a pipeline system that could scrub some of the methane produced in MWRD's digesters and sell it back to the grid."

It's even in late-stage talks with local haulers who will pay MWRD to take their waste—mostly spent grain that's left over from local breweries—which has a multiplying effect on the amount of gas produced when mixed in with sewage and stormwater. The plan is to build a pipeline system that could scrub some of the methane produced in MWRD's digesters and sell it back to the grid.

Incorporating organic waste from outside the wastewater treatment process is an unusual, and logistically difficult, step. Earlier this year, the city of Gresham, Oregon, celebrated achieving net-zero-energy status at its wastewater treatment plant, largely thanks to the fats, oils, and grease it trucked in from Portland-area restaurants. Rather than just add incrementally to the gas produced, mixing organic wastes fires up the microbial activity that produces biogas, exponentially improving a digester's output.

If it works at Calumet, MWRD will bring the whole system to its flagship Stickney plant, the world's largest, and generate enough power on-site to offset three-quarters of its energy use. It will get the rest of the way to energy neutral by reducing demand, St. Pierre says, and should pay off the initial investment in just a few years.

Anaerobic digestion isn't new—more than 1,200 wastewater treatment agencies across the country already use it—but just a few sell gas or electricity back to the grid, as MWRD plans to. Fewer still produce enough energy onsite to offset their energy consumption. But as more of them see wastewater as a potential source of revenue that could hedge against climbing energy costs, the aggressive steps taken in Hampton Roads, D.C., Chicago and elsewhere should become more widespread.

Still, St. Pierre says, their program isn't wholly cost-driven.

"We're an environmental agency, and our plants should be able to support themselves."

This feature originally appeared in [CityLab](#).

<http://www.citi.io/2015/11/20/chicagos-history-with-smart-sewage-management-to-power-future/>

"Biosolids Nutrient Management Workshop," IWEA e-News (IL)

Full article text: The Metropolitan Water Reclamation District is hosting a **Biosolids** Nutrient Management Workshop at their LASMA Visitors Center, 7601 South La Grange Road, Willow Springs, IL on Jan. 25, 2016. Workshop participants will: review results of MWRD studies and discuss recommendations for POTWs to adopt; plan for a **biosolids** nutrient management fact sheet; and develop a statement of how **biosolids** nutrient management is an active part of point source contribution to the [Illinois Nutrient Reduction Loss] Strategy. More information is available in the [Draft Biosolids Nutrient Management Document](#). POTWs and land application contractors who would like to participate in the workshop should contact Albert Cox, MWRD at 708-588-4068 or coxa@mwrdd.org.

<http://www.memberleap.com/Calendar/moreinfo.php?eventid=1184>

"Flushed Resource Restores Ecosystem," ECN

Full article text: Every city has abandoned industrial sites. Encouraging life to return to these barren areas is a challenge. It requires a healthy topsoil for plants and animals to flourish. Cities, with their heavily compacted and often contaminated soils, often struggle to restore blighted spaces. Quality soil is necessary—but not abundant in cities. Enter **biosolids**. The Lake Calumet Cluster Site (LCCS) was the home of five U.S steel plants on the southeast side of Chicago. Now it's an 87-acre wasteland of glassy slag—a rocky byproduct of steel manufacturing.

"It's a mess," says Nick Basta, "Sixty percent of the land is bare rock."

The site used to be a wetland, but years of infill, dumping, and excavation has rendered the area inhospitable to plants and animals. It is on the EPA's national priority list. Over the last few years, the city has tried to restore the area. The hope is that it will become a stop for migratory birds along Lake Michigan's shoreline.

Restoration efforts of this scale are difficult. The original plan put forth by the restoration team was a two-inch layer of compost on the site. To Basta, this wasn't the answer.

"I love compost, but it's just not good enough," he said. A good soil provides the right combination of depth, nutrients, and texture to support bacteria, fungus, insects, and worms. Compost lacks essential plant nutrients, and is easily dispersed by rain and wind. A soil teeming with microscopic life is ideal for restoring plant and animal communities.

Basta and his team from the School of Environment and Natural Resources at Ohio State University, along with Lakhwinder Hundal and Kuldip Kumar from the Chicago Metropolitan Water Reclamation District (MWRD), decided to manufacture their own soil with help from the nearby wastewater treatment plant.

Chicago's MWRD makes creative use of the enormous amount of waste Chicago generates. One example is **biosolids**—a rebirthing of sewage into a clean, pathogen-free, nutrient-dense growing material. Two years of physical, chemical, and biological treatment turns what was once sludge into a rich growing medium. These **biosolids** have a wealth of organic matter and are full of plant nutrients. It's an ideal base for diversity. In July 2015, Illinois legislation declared **biosolids** an approved resource for healthy lawns and growing crops.

Basta and his team collaborated with MWRD to create a soil blend using **biosolids**. "We called it the dream treatment," said Basta. They tilled it into test plots just outside the LCCS site.

Researchers created a second plot with compost—a thick, organic-rich material degraded from hardwood trees. The team scattered native plant seeds on both plots.

The **biosolids** plots proved to be the best home for healthy bacteria, fungus and plants—important indicators for a thriving ecosystem. Worms were happy in both the compost and **biosolids** plots.

"The next step is blending the **biosolids** and the compost," said Basta.

The city of Chicago already uses **biosolids** for golf courses and baseball diamonds. Basta hopes that **biosolids** can restore the degraded surface area of LCCS, and the poor quality soils typical in Chicago's dense urban areas.

"You have to bring in the soil," said Basta "Why not connect the dots and bring in what's available locally?"

Read more about the "dream treatment" in a special section of the *Journal of Environmental Quality*, "Soil in the City."

<http://www.ecnmag.com/news/2015/12/flushed-resource-restores-ecosystem>

"Metropolitan Water Reclamation District of Greater Chicago: Historical Beginning Brings Environmental Improvements," *Backflow Prevention & Plumbing Standards*

October 2015

BPPS

BACKFLOW PREVENTION & PLUMBING STANDARDS



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO:
HISTORICAL BEGINNING BRINGS ENVIRONMENTAL IMPROVEMENTS
AN IMPRESSIVELY NARROW FOCUS: LEONARD VALVE FACTORY TOUR

CONTENTS



FEATURES

- 6** Metropolitan Water Reclamation District of Greater Chicago:
Historical Beginning Brings Environmental Improvements



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

HISTORICAL BEGINNING BRINGS ENVIRONMENTAL IMPROVEMENTS

by **Allison Fore,**
Public and Intergovernmental Affairs Officer,
MWRD of Greater Chicago



HISTORY OF THE MWRD

In 1886, the state of Illinois embarked on a path that would vastly improve the quality of life in Chicago. The Sanitary District of Chicago, known a century later as the Metropolitan Water Reclamation District of Greater Chicago (MWRD), was created to end the problem of waterborne diseases like cholera, typhoid and dysentery that killed hundreds of Chicago residents via drinking water.

At the time, the polluted Chicago River was emptying into Lake Michigan — Chicago's drinking water source. The Sanitary District was charged with developing a plan to prevent sewage from infiltrating the drinking water intake pipes that stretched two miles into the lake. So, construction began on the Sanitary and Ship Canal. To reverse the flow of the polluted Chicago River away from the lake, the Sanitary District dug deep, wide channels, which opened the local

waterways to flow backward and down toward the Gulf of Mexico. The Sanitary and Ship Canal opened on Jan. 2, 1900.

The reversal of the Chicago River resulted in a reduction in waterborne diseases and deaths. However, communities that were downstream of this new flow expressed concern. Subsequently, the Sanitary District studied existing sewage treatment technologies, visiting plants in

England and Germany where they were already treating dirty water.

In 1923, the Sanitary District built its first treatment facility, the Calumet Water Reclamation Plant (WRP), on the south side of Chicago. This plant now serves more than 2 million people in a 200-square-mile area, including surrounding south suburbs. It treats an average of 354 million gallons per day (MGD).

Wastewater treatment's early beginnings started with primary treatment that allows heavy pieces to settle on the bottom of tanks, while fats and oils float to the top, all of which are removed and taken to landfills. In the following years, secondary treatment was developed, relying on microorganisms to clean the water through a biological process in which good bacteria consumes bad.

DISINFECTION

In 2011, the Chicago Area Waterway System (CAWS) had secondary contact classification for water quality standards, meaning direct contact with water was not recommended. The MWRD Board of Commissioners adopted a policy to disinfect on June 7, 2011. MWRD officials instituted a blue-fluores panel to evaluate available disinfection technologies and tested eight months to research and develop to determine optimal solutions for disinfecting at the most economical cost.

Backlog Prevention & Planning Standards | October 2012



On July 17, 2013, U.S. Sen. Dick Durbin, D-Ill., U.S. Environmental Protection Agency (EPA) Region 5 Administrator Susan Hedman and other community leaders joined the MWRD in unveiling a new disinfection facility at the Calumet WRP to further improve the water entering the CAWSN.

"Today marks another significant date in the history of the Metropolitan Water Reclamation District of Greater Chicago, which dates back to 1886 when the district was first tasked with addressing the issue of contamination in Lake Michigan. Since then, we have constructed more than 10 miles of canals, reversed the flow of the Chicago River and built seven water reclamation plants. Creating a disinfection facility at Calumet is another chapter in our history of water treatment and one more upgrade we have made to improve the region's water quality. I commend our board and staff for delivering this project ahead of schedule and on budget." — MWRD President Marjorie Applegate, Calumet WRP Disinfection Ribbon Cutting, July 17, 2013

The new chlorination/disinfection process reduces the amount of pathogenic bacteria in the water

released from the plant into the Calumet River system. Disinfection technology neutralizes or kills bacteria and microorganisms in treated water reducing the risk of health problems resulting from direct contact with the water. Disinfection occurs after wastewater passes through a series of treatment processes, including screening, filtering, settling and microbial separation. Using an existing chlorine contact chamber, retrofitted for more efficient contact at Calumet WRP, engineers installed and replaced all interior battle walls and associated walkways, replaced weir gates, discharge gates, drain siphon gates, inlet siphon gates and a bypass siphon gate, replaced fluid siphon hydrochloric diffuser piping, installed liquid sodium hypochlorite diffuser piping, and installed sampling pumps.

"The new Calumet disinfection facility will improve water quality for the growing number of people who kayak, water ski and enjoy other recreational activities in the Chicago Area Waterway System. U.S. EPA is proud to have played a role in making this project happen — a project that created a lot of good jobs and will improve water quality for years to come."

EPA Region 5 Administrator Susan Hedman, Calumet WRP Disinfection Ribbon Cutting, July 17, 2013

The MWRD is also implementing disinfection at the O'Brien WRP in Skokie, Ill., by constructing an ultraviolet radiation (UV) system to disinfect water prior to entering the CAWS. The MWRD allocated resources and funding to allow disinfection to occur without increasing taxes.

MWRD TREATMENT PLANTS

In 1991, the Board of Commissioners passed an ordinance committing the Sanitary District to construct and operate sewage treatment plants. The MWRD's seven wastewater treatment plants have maximum flows that range from 4 MGD at the Lemont WRP to 1.4 billion gallons per day at the Stickney WRP. (See Table 1.)

While water reclamation is the answer to cleaning polluted water before it enters the waterways, it does not provide answers to flood prevention, another of the MWRD's core missions. The MWRD addresses this problem with the Tunnel and Reservoir Plan (TARP), commonly known as the "Deep Tunnel."

"This is a historic moment for the Chicago/Calumet river system and one of the most significant water quality improvements in decades."

Table 1

FACILITY	MGD	CITY
Calumet	430	Chicago
Egan	50	Schaumburg
Harvey Park	25	Harvey Park
Stieglitz	110	Des Plaines
Lemont	4	Lemont
O'Brien	400	Skokie
Stickney	1,400	Oleto

"Friends of the Chicago River commends the MWRD Board for their leadership in making this day come. Not only are we achieving a new benchmark in water quality, we are also investing in the health of our communities by improving quality of life and access to the river for recreation and exercise while creating business income and jobs." — Margaret Fralich, Executive Director, Friends of the Chicago River, Calumet WRP Disinfection Ribbon Cutting, July 17, 2013

TUNNEL & RESERVOIR PLAN (TARP)

Like many other cities, Chicago has a combined sewer system in which sanitary sewage from homes, offices and industries drain into the same pipes as rainwater. Most of these combined sewers were built before wastewater treatment existed and were designed to drain directly into rivers. Conversely, separate sewers handle sewage and rainwater in sewers that do not connect to each other; separate sewers are more common in newer areas.

Table 2

TARP FACILITY	VOLUME (BILLION GALLONS)
Majewski Reservoir	35
Thornton Reservoir	7.6
McCook Reservoir	10.00
Tranmoil — 100 miles	5.1
Total storage	60.5

In the early 20th century, the MWRD built large intercepting sewers to redirect sewers to the WRP to clean the water. This system works well in dry weather; however, in heavy rains the intercepting sewers and WRPs can reach capacity and result in combined sewer overflows (CSOs) to the river, which impairs water quality and contributes to flooding.

As development spread through the Chicago area, paved surfaces directed increasing amounts of stormwater runoff into the combined sewer system. By the 1960s, sewers were overflowing into the river more than 100 days a year and flooding had become a persistent issue. In 1977, officials of the MWRD, the state of Illinois, Cook County and the city of Chicago formed the Flood Control Coordinating Committee to find a solution to the region's flooding and water pollution problems caused by combined sewer overflows. The committee considered 30 alternatives and selected the Tunnel and Reservoir Plan as the most cost-effective approach to providing maximum benefits with minimal negative impacts. The most obvious solution, replacing combined sewers with separate storm and sanitary pipes, was too easily disruptive to

Backlog Prevention & Planning Standards | October 2012

October 2012 | Backlog Prevention & Planning Standards





communities, and enable to provide flood relief. In 1972, staff at the MWRD developed plans to create TARP, more commonly known as the "Deep Tunnels".

TARP covers a 620-mile service area including Chicago and 57 suburbs and was constructed in two phases:

- Phase I is for pollution control. As large as 13 feet in diameter, 200 miles of tunnels were constructed to help remove mixed solids sewage during storm events. Tunnel construction began in 1975 and the entire tunnel system was operational in 1980.
- Phase II is for flood control. The construction of numerous reservoirs to collect additional rainwater mixed with sewage comprised Phase II. Two TARP reservoirs have been completed: the Gloria Altro Majorski Reservoir was finished in 1995 and is the smallest of the TARP reservoirs; the Thornton Reservoir was recently completed and is used for overflow flooding as well as TARP storage. The McCook Reservoir is set to go online in two separate stages: the first in 2017 and the second in 2020. McCook, like Thornton, is being excavated from limestone by commercial quarry operators. Partnering with commercial quarries has allowed the reservoirs to be completed economically and efficiently.



Construction was planned so that completed portions of the system could be put into operation as work continued elsewhere. The scale and scope of the project was unlike anything previously undertaken and required innovative approaches to tunneling. Newly developed tunnel boring machines were used instead of traditional hand-dug to minimize vibrations, expedite progress and reduce damage to surrounding rock. To prevent groundwater from leaking and protect the tunnels in no-water conditions, cracks in the limestone

were sealed with grout and the tunnels were lined with concrete. The outline for each of the reservoirs and tunnels is illustrated in Table 2.

To date, TARP has been extremely successful in preventing flooding and pollution control in Chicago and will be more effective when the larger reservoirs are on line. Since the tunnels became operational, CPMs have been reduced from an average of 100 days per year to six. As water quality has improved, local waterways have become home to increasingly healthy and diverse fish populations and provide destinations for recreation. Other cities around the world have taken note of TARP's success and are now undertaking similar deep tunnel projects.

PHOSPHORUS RECOVERY

Utilities, in general, are in a transformative stage. For Chicago and Cook County, the MWRD is the original environmental protection organization, as evidenced by our improvements to drinking water, implementation of wastewater treatment and commitment to stormwater management. But we recognize that there are opportunities to do more. One, to use an expanding and reimagining our own and unifying, on a massive recovery



MWRD is building the world's largest phosphorus recovery system at the Stickney WRP.

Phosphorus is a non-renewable resource that is essential for life. Sourced from rock mines, the phosphorus must be transported considerable distances for distribution. However, it is estimated that there are fewer than 100 years' worth of phosphorus reserves remaining worldwide. In the meantime, used in excess, phosphorus discharged to waterways can contribute to water quality problems and dead zones. In fact, it is estimated that there are more than 200 documented dead zones around the world. Managing the overabundance of phosphorus in our waterways with the dwindling supply needed to support life is a challenge shared throughout the world.

With anticipated regulatory limitations for nutrients, the MWRD was positive in voluntarily accepting a 10% reduction in total phosphorus as its next permit at the Stickney WRP. This permit included a compliance schedule to meet that limitation. The MWRD was in the process of changing its operations to enhance the biological phosphorus removal in our secondary treatment tanks using current infrastructure. Part of our proposed compliance schedule is the installation of a full-scale phosphorus recovery system, which will remove phosphorus

from the centrifuge centrate recycle stream. The combination of this and the enhanced biological phosphorus removal will result in the lower effluent limitation. Additionally, this process will recover phosphorus and make it available for reuse. Unlike other phosphorus products in fertilizers, this product is non-soluble in water and provides a slow release of its nutrients in plant life.

BECOMING THE UTILITY OF THE FUTURE

The MWRD has other initiatives under way as we work to increase the utility of the future. We recently received regulatory approval allowing our exceptional quality biosolids to be used as a renewable soil amendment for soil and application and are pursuing water recovery partnerships in a major industrial corridor. We're seeking an identification as a full stream energy reduction process and implementing a back-to-energy project as the way to energy neutrality by 2022. We're also exploring an algae wastewater pretreatment that has the potential to transform the clean water world. Environmental improvement will continue far into the future as long as we drive vision and commitment to progress exists.

about the author



Allison Fink has served as the public and stakeholder engagement officer at the MWRD of Greater Chicago for four years. She has 35 years of experience in public and communications, having also worked for the Illinois State Treasurer and Illinois General Assembly. She received her Bachelor of Science Degree from Indiana University and Masters of Arts degree from the University of Chicago.

The MWRD is a public utility operator. We're committed to providing clean water and wastewater services to our customers. We're also committed to protecting the environment and improving the quality of life for all Chicagoans.



©2015 MWRD. All rights reserved. MWRD/Chicago

III. Public Tours of the Stickney Water Reclamation Plant, Cicero, IL & Lawndale Avenue Solids Management Area (LASMA)

Group	Date	# of Participants
FIRST QUARTER = 18 Tours, 257 Attendees		
Channel 5	Jan. 2, 2015	2 (incl. Lee Ann Trotter)-interview Dr. Hundal, biosolids mulch
Aarhus Vand	Jan. 14, 2015	3 (incl. CEO & COO) – Danish wastewater agency
Emerging Local Govt Leaders	Jan. 30, 2015	30
Truman College	Feb. 6, 2015	14
Rob West Plumbers	Feb. 9, 2015	6
Concordia University	Feb. 9, 2015	3
Lubavitch High School	Feb. 19, 2015	31
Ill. State Controller's Office	Feb. 20, 2015	3 (advance work for Controller's Office)
Shedd Aquarium students	Feb. 21, 2015	30
Shedd Aquarium students	Feb. 28, 2015	30
US EPA – Region 5	Mar. 4, 2015	14 (incl 8 from EPA)

CMSRs Avila & Steele	Mar. 17, 2015	2 (Kiewitt work site)
Prieto Math & Science Academy	Mar. 20, 2015	19
Sierra Club	Mar. 20, 2015	20 (7 th & 8 th Graders)
Oak Park River Forest High Env AP	Mar. 24, 2015	27
Mortani America Co.	Mar. 27, 2015	5
Evergreen Park High, plus individuals	Mar. 30, 2015	11 EP, 3 individ.
Osoth Jamjun	Mar. 31, 2015	4 (Jamjun was MWRD Dir., M&O)
SECOND QUARTER = 31 Tours, 533 Attendees		
Univ of IL Urbana Champaign	Apr. 3, 2015	26
Univision (tour in Spanish)	Apr. 7, 2015	3 (incl Justin Brown & Pres Spyropoulos)
Kennedy-King College Chemistry Class	Apr. 9, 2015	9
UIC School of Public Health	Apr. 17, 2015	16
UIC Water after Borders Summit	Apr. 22, 2015	30
Univision (doing "dirty jobs" on camera @ Stickney & LASMA)	Apr. 22, 2015	3 (incl Justin Brown)
DePaul Univ. Env Chem class	May 4, 2015	18
CCA Academy	May 5, 2015	30 (incl Comm. Steele & staff)
Seven Generations Ahead (incl US EPA, Cook Cty, Kane Cty, San Fran)	May 7, 2015	7 (coord thru Kevin Fitzpatrick)
World Chicago Chinese delegatn	May 8, 2015	2
19 th Century Charitable Assn of Oak Park	May 8, 2015	20
Northwestern University	May 13, 2015	17
UIUC DVM MPH students	May 14, 2015	11
Museum of Sci & Indus	May 15, 2015	21 (referral frm Comm Shore)
Gurrie Middle School (grp 1)	May 28, 2015	31 (7 th graders)
Gurrie Middle School (grp 2)	May 28, 2015	31 (7 th graders)
Gurrie Middle School (grp 1)	Jun 1, 2015	31 (7 th graders)
Gurrie Middle School (grp 2)	Jun 1, 2015	31 (7 th graders)
Gurrie Middle School (grp 1)	Jun 3, 2015	31 (7 th graders)
Gurrie Middle School (grp 2)	Jun 3, 2015	31 (7 th graders)
Ostara (technical inquiry)	Jun 6, 2015	6
World Chicago	Jun 11, 2015	1 Japanese visitor
Aurora University	Jun 16, 2016	12
Textile Rental Svcs Assn (TRSA)	Jun 17, 2016	15
SPR Group (Ukraine)	Jun 24, 2015	3
Chgo Municipal Analysts Society	Jun 25, 2015	30
World Chicago Intl Delegation	Jun 25, 2015	10
Steve Su	Jun 25, 2015	1 (he joined sched tour – World Chicago)
League of Women Voters-Lake Michigan Region (toured LASMA)	Jun 26, 2016	31
Berwyn Park District	Jun 26, 2015	13
Comm Avila & Family	Jun 30, 2015	7

THIRD QUARTER = 26 Tours, 448 Attendees		
Moraine Valley Community College	Jul 1, 2015	24
Chicago Zoological Society	Jul 2, 2015	30
IL Soc for Pro Engineers	Jul 8, 2015	21
Foresight Design	Jul 9, 2015	12
Gary Comer Youth Center	Jul 16, 2015	23
Submersible Wastewater Pump Assn	Jul 22, 2015	20 (3 are from Comm Bradford's ofc)
South Koreans (Chgo Modern Tour)	Jul 22, 2015	12
Gary Comer Youth Center	Jul 23, 2015	22
So.Shore Intl College Prep	Jul 24, 2015	15 (Comm Steele to attend too)
Rain Barrel Contest Winners	Jul 24, 2015	(Comm Steele to attend too)
Everglades Fdtn	Aug 4, 2015	5 (Comm Shore to join them)
Village of Stickney staff (incl train & boat ride)	Aug 7, 2015	10
Comm Avila & guest	Aug 11, 2015	2
Rep Hernandez & others	Aug 21, 2015	11
21 st Century (Chinese visitors, Wuhan)	Aug 21, 2015	24
Notre Dame Univ Eng & Earth Sci Classes	Sept 14, 2015	31
Andritz – Vendor Visit	Sept 21, 2015	1; Ron Kelly of Andritz meeting with MWRD's Matt McGregor to perform MWRD-requested sampling.
German students	Sept 22, 2015	Pres. Spyropoulos requested tour
German visitors & U.S. guests	Sept 25, 2015	10 Germans + 3 U.S. visitors escorted by Ed Staudacher and Joe Schuessler
Danish delegation (incl Aarhus Vand); WEFTEC	Sept 27, 2015	30
Ostara (visiting Ostara facility only), 1 of 2 grps	Sept 28, 2015	??
Ostara (visiting Ostara facility only), 2 of 2 grps	Sept 28, 2015	31
Chinese guests of Greeley-Hansen	Sept 28, 2015	18
WEF (during WEFTEC)	Sept. 29, 2015	22
WEF (during WEFTEC)	Sept 30, 2015	40
Denver Metro (during WEFTEC), to visit dewatering centrifuges & Ostara phos rec facility	Sept 30, 2015	6
Great Lakes Restoration conf	Sept 30, 2015	24
FOURTH QUARTER = 25 Tours, 398 Attendees		
Andritz (centrifuge only @	Oct. 1, 2015	2

Stickney WRP)		
Ostara grp & Black and Veatch (visiting Ostara facility only)	Oct 2, 2015	22
Concordia Univ Chem class	Oct 5, 2015	12
Roosevelt Univ Env Sci class	Oct 7, 2015	15
UIC School Public Health, ILERC	Oct 16, 2015	21
Reavis High School	Oct 20, 2015	22
Medill Journalism students (tour/video)	Oct 21, 2015	3 (incl MWRD staff Justin Brown)
Reavis High School	Oct 22, 2015	19
Arava Foundation (interns & others start at RAPS green roof and end day @ Stickney WRP	Oct 22, 2015	7 (incl Comm Shore)
MWRD New Employees	Oct 27, 2015	15 (incl. Reed Dring)
US EPA (incl LASMA)	Oct 29, 2015	6 frm US EPA; 10 frm MWRD (incl Ron Hill, Dr. Catherine O'Connor, Reed Dring & Lakhwinder Hundal)
UIC Chem for Env Professionals (esp interested in biosolids)	Oct 30, 2015	14
Local 130 Plumbers Apprentices	Nov 2, 2015	13
Local 130 Plumbers Apprentices	Nov 3, 2015	17
Local 130 Plumbers Apprentices	Nov 4, 2015	16
Local 130 Plumbers Apprentices	Nov 5, 2015	16
Oak Park River Forest High	Nov 10, 2015	19
Trinity Christian College Env Sci	Nov 12, 2015	30
Shanghai delegation	Nov 16, 2015	13
Oak Park River Forest High	Nov 17, 2015	26
Kennedy-King College Chem class	Nov 19, 2015	9
Univ Chgo Microbial Ecologists	Nov 19, 2015	18
Comm Walsh & guests (incl LASMA)	Nov 20, 2015	6 (incl MWRD staff Shelia Porter)
Univ Chgo Geophysical Sciences & Env Chem	Nov 23, 2015	24
Shenzhen delegation (China)	Dec 11, 2015	17
Moran Family	Dec 21, 2015	16

TOTALS for 2015: 100 Tours, 1,636 Attendees

IV. Educational Visits and Presentations

Presentations & Other Outreach – 2015

Type	Date	Location	MWRD	# of
------	------	----------	------	------

			Speaker/Staffer	Participants
FIRST QUARTER = 27 Presentations & Visits			1st Quarter = 3,836 Participants	
Area Science Fair	1/16/2015	Northeastern Ill. University	Mary Carroll	40
Area Science Fair	1/23/2015	Chicago (St. Pascal School)	Mary Carroll	40
I&I Training Workshop	1/28/2015	Schaumburg	Justine Skawski	
School Visit	1/29/2015	Chicago (Patton School)	Mary Carroll	89
Area Science Fair	1/30/2015	Chicago (Daley College)	Mary Carroll	40
How Sewers Work	1/30/2015	Chicago (Chatham)	Brian Wawczak	30
I&I Training Workshop	2/5/2015	Orland Park	Justine Skawski	
Rotary Club	2/5/2015	Bartlett	Mary Carroll	25
School Visit	2/6/2015	Arlington Hts (Stitt School)	Mary Carroll	130
JNF Tu B'Shvat	2/8/2015	Deerfield	Dan Wendt	600
School Visit	2/9/2015	Elmwood Park High School	Mary Carroll	28
School Visit	2/17/2015	Chicago (United Educational Academy)	Mary Carroll	28
How Sewers Work	2/18/2015	Niles	Pres. Spyropoulos	
I&I Training Workshop	2/19/2015	Northlake	Justine Skawski	
Chicago River Student Congress	2/21/2015	Chicago (Taft High School)	Justin Brown, Chris Haite	400
School Visit	2/27/2015	Evanston (Orrington School)	Mary Carroll	60
MWRD Update @ Calumet Area Indus Commission (How Sewers Work)	3/3/2015	CAIC Office	E.D. David St. Pierre	75
I&I Training Workshop (NW Muni Conf)	3/3/2015	Lincolnwood	Justine Skawski	
EdWeek Seminar	3/3/2015	Chicago	Mary Carroll	125
Non-Public Schools Science Fair	3/7/2015		Mary Carroll	75
Going Green Matters	3/8/2015	Wilmette	Dan Wendt	1,100
I&I Training Workshop (So Suburb Mayors & Mgrs)	3/10/2015	East Hazel Crest	Justine Skawski	
Legislative Reception	3/11/2015	Springfield	BOC, Allison Fore, Jennifer Burns	
School Visit	3/16/2015	Palatine (Quest Academy)	Mary Carroll	60

Job Shadow Day, CPS & MWRD	3/18/2015	Stickney WRP	Jennifer Burns	30
CPS Science Fair	3/20/2015	Chicago (Museum of Science and Industry)	Mary Carroll	60
Speaker: How Sewers Work	3/23/2015	Chicago	E.D. David St. Pierre, Jennifer Burns	80
30 th Ward Quarterly Mtg	3/25/2015	Chicago (Riis Park)	Jennifer Burns	60
School Visit	3/31/2015	Chicago (Chappell School)	Mary Carroll	50
How Sewers Work	3/31/2015	Chicago (So Chicago)	Pres. Spyropoulos	10
SECOND QUARTER = 42 Presentations, Visits, Etc.				2nd Quarter = 24,050 Participants
Engineering CEUs Presentation	4/1/2015	Chicago (Jardine Water Plant)	Dr. Catherine O'Connor	
School Visit	4/10/2015	Chicago (Roosevelt University)	Mary Carroll	
How Sewers Work (HCBA)	4/13/2015	Chicago (Austin Irving Library)	Jennifer Burns	80
School Visit	4/17/2015	Chicago (GEMS School)	Mary Carroll	16
Streamwood Environmental Education Day	4/18/2015	Streamwood	Dan Wendt	800
Oak Lawn Westside Baseball Opener	4/18/2015	Oak Lawn	Jan Kolar	600
HCBA Expo North	4/18/2015	Chicago (McFetridge Sports Ctr)	Julie Pawlowicz	1,500
Mt Prospect Park District Earth Day	4/18/2015	Des Plaines	Mary Carroll	50
Skokie Spring Greening	4/19/2015	Skokie	Dan Wendt	1,800
Party for the Planet	4/19/2015	Brookfield Zoo	Justin Brown	2,200
How Sewers Work (HCBA)	4/22/2015	Chicago (Avalon Park Library)	E.D. David St. Pierre, Jennifer Burns	120
School Visit	4/24/2015	Chicago (Ogden School)	Mary Carroll	63
Earth & Arbor Day	4/25/2015	Northbrook	Justin Brown	1,200
Earth Fest	4/25/2015	Oak Park	Dan Wendt	1,600
Chesterfield Home Expo	4/25/2015	Chicago (Tuley Park)	Jennifer Burns	300

Clean the Park & Earth Day celebration	4/25/2015	Orland Park	Jan Kolar	1,400
Earth Day Festival	4/25/2015	Franklin Park	Mary Carroll	600
Green Tuesday Lecture	4/28/2015	Oak Park Library	Pres. Spyropoulos	12
Town Hall Mtg	4/30/2015	Forest View	Jennifer Burns	80
Earth Day Fair	5/2/2015	Oak Lawn (Wolf Wildlife Refuge)	Mary Carroll	400
School Visit	5/5/2015	Franklin Park (North School)	Mary Carroll	42
Fair	5/9/2015	Brookfield (Zoological Society Expo)	Mary Carroll	3,000
Visit – Stormwater Solutions Magazine	5/11/2015	CALSMA	Justin Brown	4
School Visit	5/15/2015	Chicago (Audubon School)	Mary Carroll	
Open House	5/16/2015	Mt Prospect	Justin Brown	2,200
Plant Your Park	5/16/2015	Hoffman Estates	Jan Kolar	600
Green Metropolis	5/17/2015	Chicago (Irish American Heritage Ctr)	Justin Brown	300
School Visit	5/22/2015	Chicago (Eugene Field School)	Mary Carroll	150
Speech: History of MWRD, Rain Barrels, Green Infrastructure	5/24/2015	Wilmette	Pres. Spyropoulos	60
School Visit & Rain Barrel Painting Contest	5/28/2015	Palos Hts (Shepard High School)	Mary Carroll	25
School Visit	5/29/2015	Berwyn (Irving School)	Mary Carroll	320
Senior Health & Safety Resource Fair	6/4/2015	Chicago (South Shore)	Mary Carroll	60
Belmont-Cragin Community Schools Fair	6/6/2015	Chicago (Belmont-Cragin)	Julie Pawlowicz	300
Intl Council Code Fair	6/6/2015	Richton Park	Justin Brown	400
How Sewers Work	6/10/2015	Chicago (Austin)	Cedric Robertson, Jennifer Burns	100
School Visit	6/11/2015	Chicago (Jones College Prep)	Mary Carroll	34
Juneteenth Job & Resource Fair	6/19/2015	Robbins	Mary Carroll	300
Garden Walk	6/20/2015	Midlothian		200
Green Music Fest	6/20/2015	Chicago (Wicker Park-Bucktown)		

Green Music Fest	6/20/2015	Chicago (Wicker Park-Bucktown)		5,000
Midlothian Veterans' Committee Independence Day Parade & Fair	6/27/2015	Midlothian	Dan Wendt	600
Buffalo Grove Green Fair	6/28/2015	Buffalo Grove	Mary Carroll	700
THIRD QUARTER = 54 Presentations & Visits				3rd Quarter = 22,780 Participants
South Side Expo	7/11/2015	Chicago (So Shore)	Dan Wendt	1,200
Independence Pk Farmers Mkt	7/12/2015	Chicago (Ind. Pk)	Dan Wendt	800
Speaker for Friends of the Chgo River: wastewater treatment, resource recovery, disinfection, TARP	7/20/2015	Chicago (Bridgehouse, River walk)	Dr. Thomas Granato, Allison Fore, Justin Brown	60
Property Fitness & Tax Appeal	7/21/2015	Chicago (Brooks College Prep)	Julie Pawlowicz	600
Property Fitness & Tax Appeal	7/21/2015	Chicago (Brooks College Prep)	Julie Pawlowicz	700
Irving Pk Garden Party	7/25/2015	Chicago (Irv Pk)	Jennifer Burns	80
Cook County Bd of Review	7/27/2015	South Holland	Jan Kolar	700
Cook County Bd of Review	7/28/2015	Cicero	Jan Kolar	700
Rain Ready	7/28/2015	Midlothian	Cedric Robertson	400
Cook County Bd of Review	7/29/2015	Country Club Hills	Julie Pawlowicz	600
Cook County Bd of Review	8/4/2015	Broadview	Jan Kolar	700
How Sewers Work	8/6/2015	Oak Park	E.D. David St. Pierre, Jennifer Burns	80
Harwood Hts Summer Festival	8/8/2015	Harwood Hts	Engineer Boba Nestorovic	400
MWRD Update @ Danny Davis Town Hall	8/10/2015	Berwyn (Council Chambers)	E.D. David St. Pierre, Jennifer Burns	100
34 th Ward Back to School	8/12/2015	Chicago (Maple Park Shopping Mall)	Julie Pawlowicz	1,300
MWRD Update @ Danny Davis Town Hall	8/17/2015	Bellwood (Village Hall)	E.D. David St. Pierre, Jennifer Burns	120
MWRD Update @ Danny Davis Town Hall	8/18/2015	Westchester	E.D. David St. Pierre, Jennifer Burns	100
Faith in Place	8/19/2015	Chicago (Trinity UCC)	Pat Thomas	600
MWRD Update @ Danny Davis Town Hall	8/19/2015	Chicago (St. Andrews)	E.D. David St. Pierre, Jennifer Burns	400

		Temple Church)		
How Sewers Work	8/20/2015	Chicago (New Joy MB Church, Englewood)	E.D. David St. Pierre, Jennifer Burns	400
Convoy of Hope	8/22/2015	Chicago (Marquette Park)	Pat Thomas	600
Worth Days (Day 1 Of 2)	8/22/2015	Worth	Dan Wendt	1,000
Worth Days (Day 2 Of 2)	8/23/2015	Worth	Julie Pawlowicz	1,000
How Sewers Work/Davis Town Hall	8/25/2015	Maywood (Council Chambers)	E.D. David St. Pierre, Jennifer Burns	100
How Sewers Work	8/26/2015	Hillside (Council Chambers)	E.D. David St. Pierre, Jennifer Burns	120
Ald. Reboyras Back to School Health Fair	8/28/2015	Chicago (Riis Park)	Mary Carroll	300
MWRD Update @ Danny Davis Town Hall	8/28/2015	Chicago (United Baptist Church)	Dr. Catherine O'Connor, Jennifer Burns	400
27th Ward Stay in School	8/29/2015	Chicago (Union Park)	Julie Pawlowicz	1,200
5900 W. Race Block Club Fair	8/29/2015	Chicago	Jan Kolar	600
49 th Ward Back to School	8/30/2015	Chicago (Loyola Park)	Dan Wendt	900
Danny Davis Town Hall Mtg	8/31/2015	Chicago (Richards Career Academy)	Dr. Catherine O'Connor, Jennifer Burns	100
Entrepreneurial Women's Conference	9/2/2015	Chicago	Mary Carroll	200
Chicago Wilderness Committee	9/2/2015	Conference Call	Mary Carroll	20
School Visit – Space to Grow	9/3/2015	Chicago (Morrill Elem. School)	Mary Carroll	150
Space to Grow	9/3/2015	Chicago (Morrill Elem. School)	Mary Carroll	800
Australian visitors	9/8/2015	Chicago (MOB Bd Rm)	Mary Carroll, Greg Yarnik, Chris Nam	
Chicago Wilderness Committee	9/9/2015	Chicago (So Shore Cultural Center)	Mary Carroll	20
Fall Fest	9/12/2015	Stickney, IL	Jan Kolar	1,600
9 th Ward Senior Fair	9/17/2015	Chicago (Roseland)	Mary Carroll	700
10 th Legis Distr Commty Resource Fair	9/19/2015	Chicago (Dunham Park)	Julie Pawlowicz	400
WaterPalooza/WEFTEC	9/25/2015	Chicago	Mary Carroll	150

		(Pershing Magnet School)		
League of Women Voters	9/25/2015	Wilmette	Justine Skawski, Pat Thomas	
Rain Ready	9/26/2015	Chicago (Chatham)	Kathleen Ecklund	700
Danish Delegation (Lunch)	9/26/2015	Chicago MOB Bd Rm	Shelia Porter	45
St. Tarcissus Green Fest	9/26/2015	Chicago	Jan Kolar	400
School Visit/Construct Rain Garden	9/26/2015	Chicago (Pershing Magnet School)	Mary Carroll	200
Glenview Farmers Mkt	9/26/2015	Glenview	Pat Thomas	500
Sears Six Corners Safety Weekend	9/26/2015	Chicago	Julie Pawlowicz	100
Knowledge Sharing Session betw MWRD & Aarhus Vand	9/26/2015	MOB Bd Rm	E.D. David St. Pierre, Shelia Porter	35
Sears Six Corners Safety Weekend	9/27/2015	Chicago	Julie Pawlowicz	
Value of Water Coalition (Reception)	9/27/2015	Chicago	Allison Fore	75
Public Communications & Community Outreach Commttee Mtg/WEFTEC	9/28/2015	Chicago	Mary Carroll	40
Visit	9/28/2015	Chicago (Daley Library)	Mary Carroll	45
San Fran Brainstorming	9/29/2015	Chicago		
U.S. Water Alliance (Luncheon)	9/29/2015	Chicago	Allison Fore	40
FOURTH QUARTER = 42 Presentations & Visits				4th Quarter = 2,407 Participants
Netherlands delegation	10/1/2015	MOB, E.D. Conf Rm	E.D. David St. Pierre	2
Senior Health & Govt Fair	10/2/2015	Chicago (Mozart Park)	Mary Carroll	50
Grow Greater Englewood	10/3/2015	Chicago (Englewood)	Linda Cohran	
49 th Ward Senior Resource Fair	10/7/2015	Chicago (7356 N. Greenview)	Mary Carroll	50
NACWA Communications Committee	10/10/2015	Chicago	Mary Carroll	20
Family Resource & Wellness Fair	10/10/2015	Niles	Mary Carroll	600
50 th Ward Senior Fair	10/15/2015	Chicago	Shelia Porter	

		(Croatian Cultural Ctr)		
School Visit	10/15/2015	Palos Hts (Trinity Christian College)	Mary Carroll	30
School Visit	10/15/2015	Chicago (Leland School)	Mary Carroll	250
School Visit	10/16/2015	Burbank (Reavis High School)	Mary Carroll	70
12 th Ward Senior & Community Health Fair	10/16/2015	Chicago (McKinley Park)	Pat Thomas	
2 nd Ward Family Health & Resource Fair	10/17/2015	Chicago (Columbus School)	Jan Kolar	
Visit	10/20/2015	Chicago (Daley Library)	Mary Carroll	45
Waste Management Ordinance Training Session	10/21/2015	Schaumburg	??	
Link & Leverage Forum	10/22/2015	Moraine Valley Comm College, Palos Hills	Andre Haynes, Pat Thomas	
School Visit	10/22/2015	Palos Hts (Trinity Christian College)	Mary Carroll	30
Illinois Science Teachers Assn Conf	10/23/2015	Tinley Park	Mary Carroll	
31 st Ward Health Fair	10/24/2015	Chicago (Kosciuszko Park)	Julie Pawlowicz	
Lansing Historical Society	10/26/2015	Lansing	Mary Carroll	40
School Visit	10/29/2015	Chicago (Sutherland School)	Mary Carroll	82
Chicago Climate Action Plan Grp	10/30/2015	Chicago (Field Museum)	Mary Carroll	40
WMO Training Session	11/4/2015	Willow Springs (LASMA)		
Hyde Park Township Property Tax Assessment Appeal Forum	11/4/2015	Chicago (Hyde Park)	Jennifer Burns	
School Visit	11/5/2015	Cicero (Cicero East School)	Mary Carroll	62
Resource Fair	11/5/2015	Sauk Village	Julie Pawlowicz	
School Visit	11/6/2015	Oak Park (Brooks Middle School)	Mary Carroll	106

Sustainability Summit	11/10/2015	Hinsdale	Pres Spyropoulos, E.D. David St. Pierre, Dr. Catherine O'Connor, Tom Kunetz, Lakhwinder Hundal, Allison Fore, Shelia Porter, Kathleen Ecklund, Jan Kolar, Julie Pawlowicz, Mary Carroll, Pat Thomas, Mary Lewis	195
WMO Training Session (incl LASMA)	11/12/2015	East Hazel Crest		
Palos Hts. League of Women Voters	11/14/2015	Palos Hts	Pres Spyropoulos	30
School Visit	11/16/2015	Chicago (Roosevelt Univ.)	Mary Carroll	30
Chicago Wilderness, Next Generation of Environmentalists	11/18/2015	Chicago (Student Conservation Society)	Mary Carroll	35
Hiawatha Seniors Club	11/19/2015	Chicago	Mary Carroll	40
School Visit	11/20/2015	Chicago (McCormick School)	Mary Carroll	145
16 th Ward Community Mtg	11/21/2015	Chicago (Lindblom Park)	Jan Kolar	
Community Visit	12/3/2015	Oak Lawn (Trinity Lutheran Church)	Mary Carroll	50
8 th Ward Town Hall Mtg	12/3/2015	Chicago (Avalon Park)	Bettina Gregor	
Village Council Mtg	12/8/2015	Robbins	Cedric Robertson	
School Visit/Science Fair	12/9/2015	Chicago (Bell School)	Mary Carroll	44
EcoMyths/Climate Change Seminar	12/10/2015	Chicago (Notebaert Nature Museum)	Mary Carroll	100
Shenzhen delegation frm China – Mtg	12/11/2015	MOB Bd Rm	Richard Lanyon	17
School Visit	12/11/2015	Chicago (Neil School)	Mary Carroll	40
Consulate Gen of Denmark	12/14/2015	Chicago (Hancock Centr)	Allison Fore, Nick O'Connor	

City Club of Chicago	12/15/2015	Chicago (Maggiano's)	Pres Spyropoulos, speaker; BOC, E.D. David St. Pierre, Dr. O'Connor, Allison Fore	
----------------------	------------	-------------------------	---	--

TOTAL for 2015 = 165 Presentations, Visits, Etc., and 32,403 Participants

