

“And if we cannot end now our differences, at least we can help make the world safe for diversity. For, in the final analysis, our most basic common link is that we all inhabit this small planet. We all breathe the same air. We all cherish our children’s future. And we are all mortal.”

*—JFK Commencement Address,
American University, June 10, 1963*

**Debra Shore, Commissioner
Metropolitan Water Reclamation District**



2008 ANNUAL REPORT

Greetings.

You have here a report on my second year in office serving as a member of the Board of Commissioners of the Metropolitan Water Reclamation District of Greater Chicago. In this brief report you will find an account of several events in 2008—the severe storms of mid-September, my participation in a three-week program at the Kennedy School of Government at Harvard—and discussions of several policy measures facing the District. While I am not satisfied with my own—and the District’s—progress on several fronts, I know that change takes time. I want to thank my colleagues on the Board for their guidance and wise stewardship of the District’s finances and resources. Thank you for your support!

Water, Water Everywhere — Flooding in 2008

During the weekend of September 12–14, 2008, Chicago and the suburbs received more rain than had ever been recorded in a 24 hour period. Residents had to be evacuated from their homes in Chicago’s Albany Park neighborhood, in Glenview and Riverside, and people throughout the region had flooded basements and streets.

By midday on Sunday, September 14, 2008, rain gauges on the north side of Chicago and the northern suburbs had recorded 7.26 inches of rain, with more still falling. Hanover Park recorded 9.45 inches at that time. The Chicago region gets 35–36 inches of rain a year on average. So this storm dumped more than 20 percent of the annual total rainfall in just 30 hours over September 12–14!



Why was there so much flooding in streets and homes over that weekend? Simply put, the water had nowhere else to go. Consider this: approximately 42 percent of the land in Cook County is covered by some sort of impervious surface—roads, roofs, parking lots, driveways, brick patios. The rich and varied landscape of prairies and oak woods that characterized our region prior to the 1850s has been replaced by a concrete skin. Natural communities such as prairies and wetlands that would have absorbed or held much of the rain have been paved over. Rain hitting impervious surfaces like pavement and driveways and patios runs off and is mostly funneled into storm sewers or retention basins.

Under normal conditions—even up to 3 or 4 inches of rain—the municipal and countywide system of sewer and stormwater pipes is sufficient to handle the runoff. The Metropolitan Water Reclamation District’s (MWRD) Deep Tunnel—109 miles of tunnel carved out of bedrock limestone up to 300 feet underground—can hold 2.5 billions gallons of stormwater overflow at one time. On Saturday, September 13, however, the Tunnel was full by 7:30 a.m. The CUP Reservoir near O’Hare filled with 350 million gallons of water and the Thornton transitional reservoir in the southwestern part of Cook County held 3.3 billion gallons from the storm.

▶ [Visit mwr.org/Engineering/OurCommunityFlooding/OCFBody0104.htm](http://Visitmwr.org/Engineering/OurCommunityFlooding/OCFBody0104.htm)

With so much rain the MWRD was compelled to employ its last resort—releasing stormwater to Lake Michigan by opening the system of gates and locks at Wilmette Harbor, at the mouth of the Chicago River near Navy Pier, and at the O’Brien lock on the south side of Chicago. The gates at Wilmette Harbor were opened at 6:18 a.m. Saturday morning to draw down water levels in the swollen North Shore Channel. Roughly 40 million gallons an hour flows into the lake at Wilmette under these emergency conditions (peak flow is 135 million gallons).

And, for the first time in six years, the MWRD opened the sluice gates near Navy Pier, and the O’Brien gates near 130th St. and Torrence Avenue in Chicago to lower water levels in the Chicago River and area waterways. Combined, the three outlets released an average of 140 million gallons of water an hour into the lake. Though this water was primarily stormwater, it did contain some highly-diluted sewage.

If we can release excess stormwater to the lake and capture billions of gallons in Deep Tunnel and detention basins, why do we still get flooded basements and rivers pouring over their banks? Because this storm produced more water than our system of pipes and reservoirs could convey or hold.

In Chicago and 51 of the older suburbs in Cook County, we have what are called combined sewer systems. This means the same pipes that carry the sewage and wastewater from your home also carry stormwater from the street drains.

WATER, WATER EVERYWHERE, CONTINUED

Yet when we have big storms, so much water rushes into the combined sewer pipes that it sometimes backs up into people's yards or overflows into the streets (and, regrettably, into people's basements) because the pipes can only hold so much water. The city of Chicago and some suburbs have installed "restrictors" in many storm drains to slow the flow of stormwater into the pipes and to use the streets as temporary holding areas for stormwater overflow.

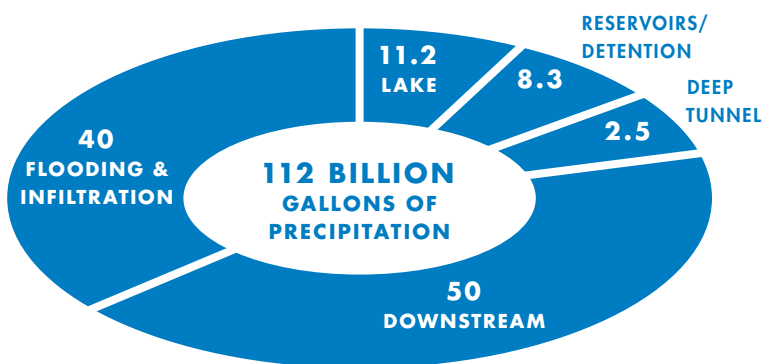
These restrictors help prevent backups from sewer pipes, but some residents don't like the ponding in the streets. Unfortunately a few residents actually remove or destroy the restrictors.

During this historic storm, the MWRD released approximately 11.2 billion gallons of stormwater into Lake Michigan through sluice gates at Wilmette, the Chicago River Controlling Works, and the O'Brien Lock & Dam. At the far end of the system, 50 miles downstream from Wilmette, the Lockport Controlling Works (near Joliet) discharged an additional 50 billion gallons of stormwater to the Des Plaines River.



The 109 miles of tunnels held 2.5 billion gallons of stormwater; the 34 regional detention/retention ponds and three reservoirs were filled to capacity with 8.3 billion gallons. Yet, the MWRD estimates that close to 112 billion gallons of precipitation fell across Cook County.

So, where did all that extra water go—40 billion gallons of water that the MWRD did not discharge to the lake or send downstream? You guessed it: your basement, my basement, yards and streets and fields.



What can we do about this? In truth, we cannot build pipes or reservoirs big enough to hold such huge amounts of stormwater runoff. Municipal leaders agree that the costs would be astronomical and the federal support for such large-scale infrastructure projects is dwindling. Yet we can try to peel back some of the concrete skin we have laid over the landscape to capture rainwater where it falls and allow it to recharge our underground aquifers.

A suite of techniques known as “green infrastructure” is designed to capture and hold rainwater, slowing the flow into the sewers and allowing more water to evaporate or infiltrate into the ground. These techniques include green roofs, rain barrels, rain gardens, bioswales (a fancy word for a vegetated ditch that captures rain from a parking lot or street) and permeable pavement.

▶ Visit greenvalues.cnt.org/green-infrastructure

While these are most effective in smaller rain events—up to an inch of rain, for example—by slowing the flow into our sewers they can effectively turn a 4-inch rainstorm into a 2-inch rainstorm by reducing the amount of stormwater the treatment system must handle. Even these techniques would not have prevented the flooding during September’s storm, however. But these techniques would have kept some water out of the torrential flow into the stormwater system. Each year as more people and municipalities install green infrastructure, the more favorable impact this will have on the region.

The Dilemma of Disinfection

In November 2007 the Illinois Environmental Protection Agency proposed new water quality standards for the Chicago Area Waterway System (CAWS) that, if adopted by the Illinois Pollution Control Board, will require the MWRD to install disinfection technology at its three largest plants. The purpose of disinfection is to kill more of the bacteria still present in the treated effluent because—presumably (and herein lies the rub)—this would reduce the risk of infection to anyone coming into contact with the water, such as people canoeing and kayaking, fishing and boating.

The Illinois Pollution Control Board has held more than three weeks' of testimony on these newly proposed standards in 2008 and hearings are continuing in 2009. To dip into the full record, including transcripts and public comment:

▶ [Visit `ipcb.state.il.us/cool/external/CaseView2.asp?referer=coolsearch&case=R2008-009`](http://visit.ipcb.state.il.us/cool/external/CaseView2.asp?referer=coolsearch&case=R2008-009)

I'll be honest with you: this issue is difficult, complex, and confusing. I came into office believing that disinfecting the effluent from the District's treatment plants was the right thing to do. I still feel that way. But, as I have learned more about the costs and the benefits, as I have wrestled with the lack of scientific data to support requiring disinfection, I am now less certain. I even went to Harvard hoping to get some in defining my position on this issue—and came back still confused. (See page 10. Thanks Harvard!)

Let me lay out the issues as I see them and ask you to let me know what you think is the right approach.



HEALTH ASPECTS OF DISINFECTION

Fish don't get sick from exposure; humans might

The pathogens (bacteria, viruses, and protozoa) found in the wastewater effluent at MWRD plants do not make fish sick. They're human pathogens, so the risk of illness from exposure to effluent-dominated waterways accrues to humans and possibly to aquatic mammals such as beavers, muskrats, and river otters (which are quite rare in the region). Since we don't know if and to what extent humans are getting sick from recreational contact with the CAWS, the MWRD is supporting an \$8 million epidemiological study being conducted by the University of Illinois at Chicago School of Public Health to try to find out. The Chicago Health, Environmental Exposure, and Recreation Study (CHEERS) plans to enroll 9,000 participants recruited from three different activity groups: 1) people who have no water contact during recreation; 2) people who boat, fish, canoe, kayak, or row in Lake Michigan, the Skokie Lagoons and the North Shore Channel upstream of the North Side Water Reclamation Plant; and 3) people who engage in these activities in all other Chicago Area Waterways.

 [Visit cheerschicago.org](http://cheerschicago.org)

If the CHEERS study shows that significant numbers of people are getting sick from recreational contact with the CAWS, then the case for disinfection becomes much stronger. But this is a difficult study to conduct, and the results, which we expect sometime in 2010, may well be inconclusive.

ENERGY AND ENVIRONMENTAL IMPACTS OF DISINFECTION

Helping people may end up harming people

The disinfection technique most likely to be used by the MWRD is to expose effluent to ultraviolet radiation, which requires a lot of energy. The consumption of more electricity—especially that produced by coal-burning power plants as is the case in much of northeastern Illinois—results in its own damaging environmental impacts: increase in greenhouse gas emissions and release of mercury and air pollutants from coal plants, among them. How to weigh the reduction of risk to recreational users of the CAWS, whose activities are largely voluntary, against the damage to the environment from coal plants and greenhouse gas emissions, spread unevenly and received involuntarily across communities and the globe?

FISCAL COSTS

Do we have a full cost-benefit analysis?

The costs of installing and operating disinfection technology vary widely, depending on the equipment and whether all three of the District's largest plants are included, but estimates range from 300 million to 1 billion dollars. If the District is compelled to disinfect its effluent, this is likely to require a tax increase in Cook County. (Some have suggested that a compromise position would be to exclude Stickney, the District's jumbo plant, because recreational use of the CAWS near that plant is minimal. Removing Stickney from the disinfection requirement would cut costs by 50–60 percent.) Conversely, one could regard the requirement to install disinfection as a form of economic stimulus for Cook County, creating jobs in design, engineering and construction and, eventually, in operation. Most of the millions required to fulfill a disinfection mandate would be spent in Cook County.

PRECAUTIONARY PRINCIPLE

Tools for decision-making

What would the precautionary principle say when applied to the issue of disinfection? That's the question I asked of David Reese, a recent graduate of the University of Chicago assisting me with several special projects. The precautionary principle states that, "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof."

▶ See David's analysis at debrashore.org/precautionary

David's nuanced and careful analysis concluded that the costs to the environment and to human health from the increased energy use—and the moral imperative of distributive justice—outweigh the potential benefits of disinfection to recreational users of the CAWS at this time.

I am not suggesting that this is the final word on the dilemma of disinfection nor that I have framed a final position on the issue. I offer this in the hope of soliciting your thoughts and guidance—and in the interest of sharing in a public way my own efforts to consider this important issue carefully and thoroughly. You can reach me at debra.shore@mwrld.org

Safe, Secure Disposal of Pharmaceuticals

As reports continue to surface of trace amounts of pharmaceuticals found in drinking water supplies around the country, the MWRD has convened a Pharmaceuticals Disposal Working Group to try to address the issue of collection and safe disposal of unused or expired medicines. This past year, the working group met several times and the District agreed to support survey research to determine what residents of Cook County are doing with their unused or expired medications, what are their attitudes and beliefs about various disposal techniques, and what are their preferred collection programs. A telephone poll of approximately 500 people from Chicago and the suburbs will be completed by mid-2009 and will provide baseline information for the District's outreach and education efforts. In the meantime, you can safely dispose of your medications at the District's hazardous waste collection days or at the city of Chicago's permanent hazardous waste collection facility on Goose Island.

► For more information, including Prescription Drop Box locations, see debrashore.org/disposal



“Change does not happen
when you are comfortable....”

In July I spent three weeks at the **Kennedy School of Government at Harvard** attending a program for Senior Executives in State & Local Government. With me were 74 people from 33 states and two foreign countries. Seventeen elected officials and the rest serving in public agencies. (I roomed with Dolly Sandoval, mayor of Cupertino, California, and Yolly Roberson, state representative from North Miami Beach, Florida. Should I have changed my name to Holly?)

▶ To see an interview about my experience at Harvard,
[see \[debrashore.org/video\]\(http://debrashore.org/video\)](http://debrashore.org/video)

The goal of the program is to help senior officials in government exercise effective leadership, especially in today’s political environment of complex problems, diminishing resources, and increased calls for transparency and accountability.

The principal text used in the program is *Leadership on the Line, Staying Alive through the Dangers of Leading* by Ronald A. Heifetz and Marty Linsky. What does it mean to exercise leadership as opposed to authority? Linsky asked in several probing class sessions. How do you find allies and not place yourself so far out on the line that you become a martyr? How do you get things done in a system that may be dysfunctional because it entirely serves the people in it to be that way?

AUTHORITY VERSUS LEADERSHIP

One tenet of the program is that exercising leadership is not the same as exercising authority. Authority is within the scope of one’s job description; leadership requires going beyond one’s authority to “disappoint people at a rate they can absorb.” Sounds provocative, I know, and some people find this definition of leadership deeply pessimistic. I happen to think it is profound. Another way of phrasing this might be, “Leadership is telling people what they need to hear rather than what they want to hear.”

This kind of leadership is risky, dangerous, bold, which is why Linsky also discussed strategies for survival. (It’s important, for instance, not to confuse your role as a public official with your self. How many examples have we had of very public and powerful people who, once their position at the helm ended, quickly became ill or lost their way?)

TECHNICAL SOLUTIONS V. ADAPTIVE CHANGE

Another key teaching was the difference between technical solutions and adaptive change, or what I would call ‘changing the culture.’ Technical problems only require the exercise of someone’s authority to apply necessary knowledge and procedures. Adaptive change, on the other hand, is much more difficult because it requires us to change our attitudes, our values, our behavior. Changing the culture—of an agency, a department, an organization—requires loss, i.e. relinquishing ‘the way we’ve always done things’ to adapt to new realities, to respond to crises, to deal with disequilibrium.

As an example, in 2008 the MWRD received national recognition for developing an environmental management system for its biosolids program. This meant coordinating the biosolids program at four different plants, requiring “buy-in” from different managers, resolving inconsistencies in various operating procedures, and overcoming deep-seated resistance. I asked several engineers who worked on this which was more difficult, the technical problems or the adaptive change? Without hesitation they all said, Changing the culture. With this successful experience, the District can seek to change other aspects of its operations to be more effective and collaborative in the future.

▶ To learn more, visit mwrdd.org/MO/biosolids

NOBILITY OF SERVICE

One of our professors was Dan Fenn who had worked with President Kennedy in the White House and then served as the first director of the JFK Library in Boston. Fenn prodded us to consider what it means to be a representative of the people, to ask ourselves whether we are ‘delegates’ or ‘trustees.’ “Beware of the seductive mantra that you should run government like a business,” Fenn said. “Business is into efficiency, returning a profit to management, shareholders, employees. Government needs to be efficient, but it is not a business, because the concerns of government are equity and fairness, public engagement and the search for the common good.”

“In a democracy, every citizen, regardless of his interest in politics, holds office; every one of us is in a position of responsibility,” JFK said. “The kind of government we get depends on how we fulfill those responsibilities.”



Standards for Managing Stormwater

A watershed is an area of land where all the water drains to the same place, carrying with it sediments, nutrients and other materials, including pollution. Healthy watersheds are vital to protect water quality and to nurture a diverse ecosystem. The Little Calumet River Watershed, as an example, includes any land where a drop of rainfall would eventually wind its way into that river.

The District has been drafting a Watershed Management Ordinance for Cook County that will be released for public review and comment sometime during 2009. This ordinance will establish minimum countywide stormwater management regulations and will be an important mechanism for flood control, drainage and detention, streambank and wetland protection, riparian habitat restoration and much more. Six Watershed Planning Councils, a Technical Advisory Group, and a Public and Private Organization Advisory Group have been meeting for the last two years to provide guidance. The new ordinance is likely to apply to new development and redevelopment within the County. Some possible components include:

- Requirements to manage a portion of rainwater on the site (without sending it into the sewer system).
- Protections and restrictions when proposed projects will impact wetlands—including seasonal or temporal wetlands—and riparian areas.
- Controls on the volume and rate of stormwater running off a site into the stormwater system.

▶ [Check for updates on the release of the draft ordinance at mwr.org](http://mwr.org)

Real-time Info for Officials

Following the mid-September storm and flooding, the District has been exploring a way to provide real-time information to municipal officials, such as when the gates at Wilmette Harbor are opened during storm events and when Deep Tunnel is filled. Text messages sent to officials' cell phones, information broadcast on a special radio frequency, or e-mail blasts may result. These are part of the District's efforts to be responsive to Cook County residents and helpful to municipalities.

Markham Prairies

Ron Panzer, professor of biology at Northeastern Illinois University and eminent entomologist, had been working with others for decades to protect high-quality prairie remnants in suburban Markham known as Indian Boundary Prairies.

▶ [Visit nature.org/wherewework/northamerica/states/illinois/preserves/art1119.html](https://www.nature.org/wherewework/northamerica/states/illinois/preserves/art1119.html)

The village of Markham had agreed to vacate the streets on several parcels and turn them over to the Natural Land Institute, but a number of the parcels had outstanding tax liens that needed to be sold via no cash bids by Cook County. Panzer was getting nowhere. He called and asked if I could help. A quick call to Cook County Assessor Jim Houlihan and some helpful intercession by Cook County Commissioners Larry Suffredin and Deborah Sims and the problem was solved. Go visit in the summer when the rare Aphrodite fritillary swims on air currents above rough blazing star and wild quinine.



Greening the Agency

Encouraging progress was made throughout the past year toward making the District a model of sustainability.

- **Fleet** The District has continued to purchase electric vehicles for use at its plants.
- **Rain Barrels** Available for \$40 to any resident of Cook County (limit two).
 - ▶ To purchase barrels, go to mwrld.org/barrel
- **Permeable Pavement** The District has installed an experimental plot of three different permeable surfaces in the parking lot of the Stickney Wastewater Treatment Plant to evaluate how they perform in our climate and soils and what maintenance is required.
- **Rain Gardens** The District has commissioned Terry Guen to design rain garden plans and will work with selected high schools around the county for installation as stormwater education projects.
- **Native Landscaping** Liberating a portion of the turf grass at several facilities, the District has installed native plant areas that do not require mowing or irrigation and that provide habitat for birds, butterflies and beneficial insects.
- **Habitat Assessment** The District has contracted with LimnoTech to conduct an assessment of the habitat conditions and restoration challenges on its 6,000 acres of property in Cook County.
- **Sustainability Study** CDM is evaluating the District's performance measurement system. Once refined, these efforts will integrate appropriate sustainability principles and measures into the day-to-day work environment.
- **Procurement Policy** The District's Purchasing Department is developing a "green procurement policy" that we hope will be released for review sometime in 2009.
- **Renewable Energy** Currently, the District captures approximately 82 percent of the methane produced in the wastewater treatment process and uses this powerful greenhouse gas for heating. Efforts are underway to capture close to 100 percent of the methane.

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▶ Visit debrashore.org

My April 1 newsletter was a special edition in honor of April Fool's Day. But, of course, not everyone read the disclaimer at the end. I mention this now in case anyone is itching to ride the paddle bikes proposed here.

Braking News

From: Debra Shore, Commissioner, MWRD
Date: Tuesday, April 1, 2008 11:12 AM
Subject: Braking News

April 1, 2008

Braking News



The Metropolitan Water Reclamation District (MWRD) today announced a dramatic new initiative to improve conditions in the Chicago waterways, provide a safe, secure source of renewable energy, and address the ballooning problem of obesity in Cook County. The District unveiled plans to install a dramatic array of paddle bikes stretching across the width of the North Shore Channel every half-mile from the lock at Wilmette Harbor to the Lawrence Avenue pumping station in the north and along the South Branch of the Chicago River from Ping Tom Park near Chinatown to the confluence of the Sanitary and Ship Canal.

Each array will contain 24 paddle bike stations in stainless steel frames attached to the river bank by a pedestrian bridge. Pedalers powering the paddles will send a dramatic froth of highly oxygenated bubbles into each section of the waterway. Biologists note that the "dissolved oxygen" generated by the rapid rotation of the paddles is one of the basic requirements of a healthy aquatic ecosystem. Fish biologists believe that desirable species such as trout and salmon will soon be attracted to these paddle power grids because of habitat improvements.

When the amount of dissolved oxygen reaches suitable levels, a simple elevation mechanism raises the paddle bike above water level where a flywheel apparatus attached to each bike stores energy generated by continued paddling. Each bike will also be equipped with a precision calorie counter so that every pedaler can monitor his or her individual burn rate.

"We are so pleased that we can improve habitat for fish and help people lose weight at the same time," announced an MWRD spokesman. "Students from nearby high schools can earn credits for biology and burn calories for phys ed *at the very same time* by spending just a half hour each day on these paddle bikes," he added. "And what a great way for families to spend quality time together!"

Environmental advocates speculated that this dramatic project -- by saving fish, producing energy, and reducing the size of Chicago's population (poundwise, that is) -- would rank among the MWRD's finest achievements, kind of like the MWRD's water cannon that shoots an arc across the Chicago River at 10 minutes past the hour.

*Oh by the way,
Happy April Fools Day.*

There are no pending schedules

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