CITY OF MILWAUKEE
1846
DEPT. OF PUBLIC WORKS

ANNUAL REPORT
2009

2009 Milwaukee Common Council

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District 1

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District 2

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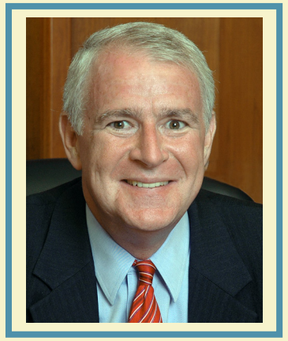
City of Milwaukee



Mayor Tom Barrett

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MISSION

To promote the health, safety, mobility and quality-of-life for all City of Milwaukee residents and visitors by providing:

- Safe, attractive and efficient surface infrastructure systems
- Solid waste collection, disposal, recycling, and waste reduction
- Safe, aesthetically pleasing and sufficient drinking water
- Storm water and waste water conveyance
- Support services and facilites for the Department of Public Works (DPW) and other city departments

INITIATIVES FOR 2009

- Continue to incorporate the Mayor's sustainability vision into as many DPW projects as possible, i.e., removal of asphalt from school playgrounds and recreation areas, storm water management on parking lots, etc.
- Continue the Sustainable Boulevards Program set to end in 2010, which will include 93 signature beds along 20 boulevard segments.
- Begin to convert the City Fleet to "green" vehicles. Including 24 hybrid cars and pick-ups and replace petroleum diesel fuel vehicles with soy biodiesel vehicles
- Continue to market Milwaukee Water Works to companies in an effort to increase business development and job creation.

MESSAGE FROM THE COMMISSIONER: YEAR IN REVIEW

The Department of Public Works and the City of Milwaukee had a very important goal in 2009: to continue to make strides in Environmental Sustainability. This year each division strived to make Milwaukee a more environmentally friendly city by reducing waste and lowering energy costs. After the renovation of City Hall in 2008 ,the entire complex; which includes City Hall, the Frank P. Zeidler Municipal Building and the 809 building, had a year full of awards and recognition for their work on environmental sustainability. In September Mayor Barrett accepted a Leadership in Energy and Environmental Design Certification that is internationally recognized and awarded to buildings that maintain strategies aimed at improving performance in matters of energy savings, water efficiency, CO2 emissions reduction and indoor environmental quality and stewardship.

The ADMINISTRATIVE SERVICES DIVISION had a busy year with the Department of Public Works new website design. The new site allows users to easily navigate and find what they need quickly. Also by migrating to milwaukee.gov citizens can now search and get relevant results on a single website. This also allows departments to update their own web page, which reduces IT labor costs.

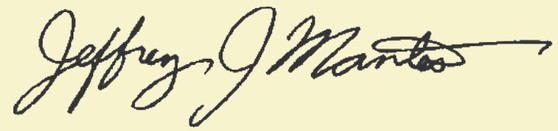
The ENVIRONMENTAL SERVICES DIVISION continued their tradition of placing first in the Cash for Cans- City Recycling Challenge for the 6th straight year. By recycling this much aluminum the city will save the energy equivalent of over 2,750,000 gallons of gasoline. After its launch in 2008, the "Recycling for Good" campaign has expanded from print advertisements and radio commercials to including activities such as door-to-door recycling outreach and the collection of recycling pledges.

The BUILDINGS AND FLEET DIVISION was honored on a national level by Government Fleet Magazine as one of the Top 20 Environmental Leadership Award Winners this year. This can be attributed to the city fleet now including 24 hybrid cars and pickups along with two hybrid aerial lift trucks. These vehicles are up to 66% more efficient than standard cars and trucks. Fleet drivers recently completed the first of its kind Eco-Driving Program, funded with a grant from the Wisconsin Department of Natural Resources and in partnership with Wisconsin Clean Cities, MATC and WDNR. Sixteen drivers were trained in the techniques of both fuel efficient driving and basic vehicle maintenance, and are showing an average improvement of 15.5% in fuel economy when driving City vehicles.

INFRASTRUCTURE SERVICES partnered with Johnson Controls to contribute to making Milwaukee a "greener" city by converting 717 of the city's 746 signalized intersections from using traffic signals with standard incandescent light bulbs to light emitting diodes, or LEDs. The use of the LEDs has resulted in a 60% energy reduction and is anticipated to save the city $340,000 in energy costs.

In March, Milwaukee WATER WORKS participated in the first-ever national Fix A Leak campaign to help consumers save money on their bills and avoid wasting water. Milwaukee has the sixth lowest cost of water in the nation, but even small, unnoticed leaks can add up to big money. The low cost of water in Milwaukee has also led MillerCoors to expand in the West State Street brewery which has led to increased employment in the city. After the renovation of the Kilbourn Reservoir Park in 2008, Water Works received a Milwaukee Mayor's Design Award for design excellence and for contributing to the urban landscape. The former water storage facility was transformed in a multi-year public involvement effort into a new park with sustainable landscape material.

In 2009 the Department of Public Works successfully initiated, finished, and continued many projects dedicated to the unrelenting efforts of making Milwaukee a "greener" city for its citizens. I am extremely proud of the work that the Department of Public Works staff has accomplished in 2009 although the projects talked about are only a small sampling of their efforts. Thanks to the staff for their continued hard work and dedication to the citizens of Milwaukee.



Jeffrey J. Mantes, Commissioner
City of Milwaukee - Department of Public Works

DEPARTMENT OF PUBLIC WORKS

Commissioner of Public Works.....**Jeffrey J. Mantes**
Director of Operations.....**Preston Cole**

OFFICE OF THE COMMISSIONER:
Coordination Manager.....**Ghassan Korban**
Personnel Administrator.....**Dan Thomas**
Permits and Communications Manager.....**Cecilia Gilbert**

ADMINISTRATIVE SERVICES

Administrative Services Director.....**Shirley Krug**
Finance and Planning Manager.....**LaQuisha Schroeder**
Parking Enforcement Manager.....**Thomas Sanders**
Parking Financial Manager.....**Cindy Angelos**

The **Administrative Services Division** is responsible for finance and planning, the DPW Call Center, special event permits, parking-related activities and contract administration.

OPERATIONS DIVISION

Sanitation Services Manager.....**Wanda Booker**
Forestry Services Manager.....**David Sivyer**
Fleet Services Manager .....**Jeffrey Tews**
Administrative Services Manager..... **Paul Klajbor**
Buildings & Fleet Superintendent.....**Venu J. Gupta**

The **Operations Division** is responsible for waste collection and disposal, recycling and waste reduction, trees and landscaping, fleet maintenance and dispatch, support services to City facilities and ice control.

INFRASTRUCTURE SERVICES

City Engineer.....**Jeffrey Polenske**
Administration & Transportation Design Manager.....**Clark Wantoch**
Engineer-In-Charge, Environmental Section.....**Martin Aquino**
Infrastructures Operations Manager.....**Dale Mejaki**

The **Infrastructure Services Division** is responsible for the design, construction, operation and maintenance of all streets, alleys, bridges, public-way lighting, traffic control signs and signals, sewers, and underground conduit systems; and overseeing the construction of water facilities.

WATER WORKS

Superintendent.....**Carrie Lewis**
Administration & Projects Manager.....**Laura Daniels**
Business Manager .....**Earl Smith**
Plants Manager – North.....**Dan Welk**
Plants Manager – South .....**John Gavre**
Distribution Manager.....**Dave Goldapp**
Engineering Manager .....**Dinah Gant**
Water Quality Manager.....**Lon Couillard**

The **Milwaukee Water Works** provides safe, abundant drinking water to the City of Milwaukee and 16 communities in Southeastern Wisconsin.

DEPARTMENT OF PUBLIC WORKS: BUDGET SUMMARY

	2007 ACTUAL EXPENDITURES	2008 ADOPTED BUDGET	2009 ADOPTED BUDGET	CHANGE 2009 ADOPTED VS. 2008 ADOPTED
PERSONNEL*				
FTEs - Operations & Maintenance	0	1,035.9	1,041.0	5.13
FTEs - Other	0	413.4	417.8	4.36
Total Positions Authorized	-	2,355	2,393	38
EXPENDITURES - General City Purposes				
Administrative Services	$4,704,929	$4,774,419	$4,890,430	$116,011
Infrastructure	25,001,995	24,938,934	26,390,916	1,451,982
Operations	86,685,441	81,110,095	82,399,692	1,289,597
SUBTOTAL - General City Purposes	**$116,392,365**	**$110,823,448**	**$113,681,038**	**$2,857,590**
WATER WORKS				
Operating Budget	$63,655,263	$67,709,700	$71,008,475	$3,298,775
Capital Budget	15,485,215	36,769,000	27,096,000	-9,673,000
TOTAL WATER WORKS**	**$79,140,478**	**$104,478,700**	**$98,104,475**	**-$6,374,225**
PARKING BUDGET				
Operating And Maintenance Budget	$25,155,812	$26,040,922	$26,552,163	$511,241
Capital Budget	2,141,626	2,700,000	2,936,000	236,000
Addition to Parking Reserves	0	0	0	0
Transfer to General Fund	15,800,000	17,000,000	18,132,150	1,132,150
Capital Improvements to be Financed				0
from Permanent Improvement				0
Reserve Fund - Parking	0	5,000,000	5,000,000	0
TOTAL PARKING BUDGET	**$43,097,438**	**$50,740,922**	**$52,620,313**	**$1,879,391**
SEWER MAINTENANCE FUND				
Operating and Maintenance Budget	$36,583,470	$40,162,619	$44,898,343	$4,735,724
Capital Improvements	19,502,394	29,950,000	31,450,000	1,500,000
TOTAL SEWER FUND BUDGET	**$56,085,864**	**$70,112,619**	**$76,348,343**	**$6,235,724**
GRAND TOTAL - DEPARTMENT OF PUBLIC WORKS	**$294,716,145**	**$336,155,689**	**$340,754,169**	**$4,598,480**

*Personnel totals reflect Operating Divisions, Water Works, Parking Fund and Sewer Maintenance Fund
**Does not include retained earnings

ADMINISTRATIVE SERVICES DIVISION

Shirley Krug,
Administrative Services Director

Who We Are

The Administrative Service Division serves as department liaison to elected officials and the public and coordinates major transportation, environmental and economic development-related projects. In addition, this division is responsible for coordinating the department's operating budget, financial account management, payroll and personnel administration, employee safety and contract management.

The division also manages all communication responsibilities, including media relations; special event permits; DPW Call Center; all data and voice telecommunications infrastructure; parking enforcement; parking information desk; city tow lot; towing contracts; citation processing contracts; parking structures and lots; parking permits and meters.

Zeidler Municipal Building
841 North Broadway,
Room 519

Thomas Sanders, *Parking Enforcement Manager*

LaQuisha Schroeder Finance and Planning Manager

Cindy Angelos, *Parking Financial Manager*

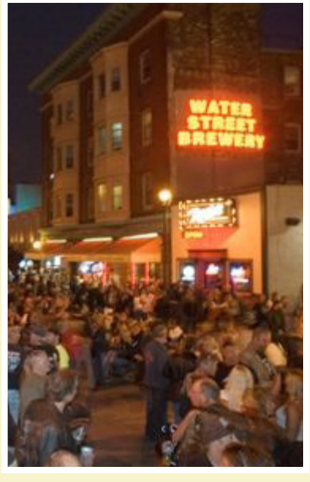
Office of the Commissioner:

Preston Cole, *Director of Operations*

Ghassan Korban, *Coordination Manager*

Dan Thomas, *Personnel Administrator*

Cecilia Gilbert, *Permits and Communications Manager*

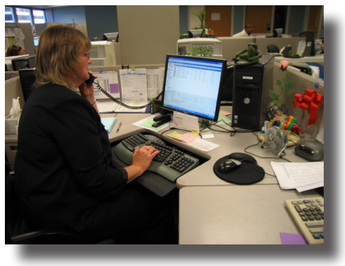


Finance and Planning

In 2009, the department's operating budget (excluding enterprise funds) totaled $113.7 million. At year's end, expenditures for materials, services and equipment and totaled $240,993 below the $40.0 million budgeted. However, expenditures for employee salaries exceeded budgeted amounts due to increased wages resulting from the City's contract agreement with the American Federation of State, County and Municipal Employees (AFSCME) District Council 48 for contract years 2007 through 2009. As a result, the department required $1.1 million in funding from the City's Wages Supplement Fund, a fund maintained by the City for the purpose of funding increased salary expenditures due to contract settlements.

DPW Call Center/286-CITY

The DPW Call Center began operations in November 1998. It is a "one-stop-shop" for citizens requesting services or seeking information either by telephone or on-line at city.milwaukee.gov\mpw. Citizens dialing 286-CITY talk to customer service representatives, who process requests for services, provide information and respond to citizen complaints related to sanitation, forestry, street maintenance, street lighting, sewer maintenance, street signs and traffic signals.



In 2009, the Call Center received 224,267 calls and requests for services, down 2.1 percent from the year before. Of the total calls received, 105,266 were service requests, also down 21 percent from 2008. This reduction is largely due to a reduction in major snow events experienced in 2009 compared to 2008.

Personnel/Safety

In 2009, the Personnel/Safety sections continued work on various initiatives. Changes have been made to streamline the Injury Review process. These changes have made it possible for staff to meet with each employee who is injured and placed into the Transitional Duty Program. Placement of employees into this program have reduced Injury Pay expenditures and has allowed employees who are injured to return to work sooner than ever before.

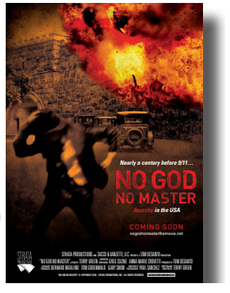
In 2009, planning was underway to begin the creation of the Public Works University (PWU). This is an extension of the successful Environmental Services University initiative. PWU will be offered department wide and is intended to educate and equip DPW management staff to deal with the unique challenges present in managing DPW divisions. Curriculum is being established in 2010 and classes will begin in 2011.

Special Events

The Department of Public Works' Special Events Office issued 1,104 permits for activities in the public right of way in 2009. This is 47 permits less than those issued in 2008, but $5,463 more was collected. Total amount collected was $304,928. A majority of the permits were issued for neighborhood activities; Memorial Day, 4th of July, Back-to-School, health fairs, Main Street events, BID events and block parties. Festivals, such as Bastille Days, Bay View Bash, South Shore Frolics, Summer Solstice, King Drive Street Jam and Juneteenth Day Celebration were some of the events that added to the vibrancy of the City.

The Great Circus Parade returned to the streets of Milwaukee along with other parades and runs that bring the streets alive with activity, like the St. Patrick's Day Parade, the Miller Lite Ride for the Arts, Al's Run, Storm the Bastille, and numerous other runs and homecoming parades.

In July and August of 2009 the movie, "No God, No Master" was filmed in the City Milwaukee. The movie was set in the 1920's and the historic neighborhoods and City Hall provided the perfect background. Approximately $5,000 was paid in permit fees.



The Special Events Office has had an increase of requests for permits for television shows, commercial shoots and films.

Parking Fund

The Parking Fund is an enterprise fund administered by the DPW that oversees all parking-related revenue generated from City-owned parking structures, lots, meters, citations, towing, and night and day privilege parking permits.

Structures and Lots
Besides the four public 24-hour cashierless parking structures the City operates, the Parking Fund also oversees a long-term lease of a fifth garage to a private company. Additionally, the Parking Fund oversees approximately 46 surface lots that are primarily controlled by permits or meters. In 2009, total revenue earned from all structures and lots exceeded $7.2 million.

A staff of five oversees more than 6,500 metered parking spaces citywide. The staff is responsible for maintaining, hooding, installing and removing meters as required. In 2009, more than $4.6 million was generated from all sources of meter revenue.

Night Parking Permits
DPW administers the overnight parking permit program.

In 2009, permits were sold at three Violations Bureau payment centers, the Tow Lot, and seven district police stations. Six police stations have electronic payment center kiosks. As of December 20, 2009, DPW introduced night permit purchases via the internet.

The new internet method is administered by DPW's citation processing contractor. From the convenience of one's own home, a permit can be purchased on-line and the data is recorded in real time. The buyer receives a confirmation number enabling him or her to park with permission for up to seven days while the manual permit is mailed to the buyer. Initial response to the internet-based option is optimistic. This option is more convenient to residents and minimizes disruption at the Milwaukee Police Department district stations by reducing the number of people waiting in lines to purchase permits.

Legislation was also passed in 2009 to replace the quarterly night permit with a 2010 4-month permit, requiring one less permit purchase per year. This will be offered along with the annual permit option for 2010 permit sales.

In 2009, over $3.1 million was earned from quarterly and annual night permit sales.

Parking Citation Processing
The comprehensive citation processing contract manages the processing of all computer-generated and manually-issued parking citations, the collection of all fines from all means, the scheduling of citation disputes with the Citation Review Manager and/or the Municipal Court. It also includes the staffing and operation of three citation payment centers, the operation of a customer call center, the web and interactive voice response citation payment system, night permit database recording, permit and citation kiosk operations, among other responsibilities..

Parking Meters
In 2009, DPW continued to expand the installation of multi-space meters throughout downtown, including the initial installation of ten solar-powered units in the Historic Third Ward area. The Third Ward has many hollow sidewalk areas where the electric-powered multi-space meters cannot be installed. Experience gained from these units will determine the extent of future solar-powered deployments throughout other areas of the City where conditions warrant.

Parking Enforcement
Parking Enforcement operates 24 hours per day, 7 days per week, 365 days per year patrolling over 1,400 miles of city streets to provide consistent and comprehensive regulation enforcement. Enforcement patrols for day and night ordinance violations, responds to citizen complaints, aldermanic service requests, and investigates complaints of abandoned vehicles via scheduled and special deployment.

In 2009, 885,802 parking citations were issued, up slightly from 2008's 880,859 total issuance. Parking citations generated revenues totaling approximately $21.1 million.

City of Milwaukee Tow Lot
DPW administers two contracts for towing vehicles and one for recycling vehicles. Of the 31,562 vehicles towed in 2009, 82.7 % were returned to owners, 14.3% were recycled, and 3% were sold at junk-bid auctions. Revenues generated from all towing activities totaled almost $5.5 million in 2009.

Technology Support Services

The Technology Support Services (TSS) section has responsibility for three areas of technology for the Department of Public Works and the City: server/desktop computing, application development and citywide telecommunications infrastructure.

Server/Desktop Computing
This team supports software and hardware for user and desktop clients and deploys group policies and software updates to maintain a secure computing environment. Support is provided for new and existing applications including: e-mail, 286-CITY, parking enforcement, work management systems, public works permits, Microstation, and PeopleSoft.

In 2009, TSS upgraded the Microsoft Windows Active Directory server hardware platform. The recording system for Fleet Dispatch and Parking Enforcement was upgraded to a new and more functional platform.

New Applications Developed for Mobile Tablet PC's Enable:
- Sanitation to inventory carts
- Forestry to record weed notice and snow removal information
- Safety inspectors to record violations in the field

Telecommunication Services:
TSS provides installation, maintenance and support for a wide variety of telecommunication equipment. Most importantly, TSS supports the network infrastructure for the Milwaukee Police, Fire and Water departments.

TSS also supports telecommunication services for municipal security systems, the City and Police Department telephone internode links, radio backbone, and low-speed data communications.

In 2009, upgrades to the City's core data network were completed. Capacity of the City's Internet connections was increased to meet the City's growing Internet bandwidth demands.

Contract Administration

DPW contracts for all City infrastructure projects. It also contracts for several major public service functions, including solid waste recycling, public parking structure operation, vehicle towing and parking meter revenue collection.

Through its contracts, DPW leverages employment opportunities for City residents who live within the Community Development Block Grant boundaries. This initiative is formally known as the Residents Preference Program (RPP).
Under the program, at least 25 percent of all hours worked on individual city contracts must be allocated to unemployed residents in the Community Development Block Grant area. In 2009, the RPP was expanded to include unemployed and underemployed people residing anywhere in the City of Milwaukee.
At least 40 percent of all hours worked on individual city contracts must be allocated to these residents under the new legislation. DPW also requires that contractors use Emerging Business Enterprises (EBE) in their contracts. EBE firms, typically small firms owned by one or more individuals who are at an educational, social, economic or other disadvantage, are certified by the City and are mandated by ordinance to be involved in at least 18 percent of all work contracted by the department.

Starting in August 2009, at least 25 percent of all construction work contracted by the department must be performed by EBE firms.

As of August 2009, all DPW bids included new Local Business Enterprise (LBE) criteria, which allow Milwaukee based bidders a 5% preference.

OPERATIONS DIVISION

Preston Cole,
Operations Division Director

Who We Are

The Operations Division includes Buildings & Fleet, Environmental, Forestry, and Sanitation Services. It is responsible for solid waste collection and disposal, recycling and waste reduction, trees and landscaping, fleet maintenance and dispatch, support services to City facilities and snow and ice control. Operations is dedicated year-round to keeping Milwaukee clean, manicured and safe.

Zeidler Municipal Building
841 North Broadway,
Room 501

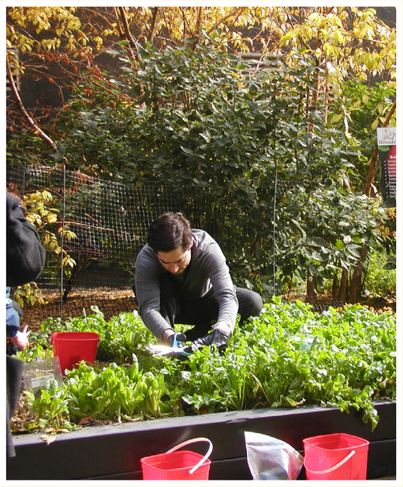
Wanda Booker,
Sanitation Services Manager

David Sivyer,
Forestry Services Manager

Venu J. Gupta,
Buildings & Fleet Superintendent

Gary Kulwicki,
Facilities Manager

Jeffery Tews
Fleet Services Manager



Sanitation

Tipping Fees

The State of Wisconsin raised taxes 120% on waste sent to landfills to $13 per ton from 2008 to 2009. This increases City of Milwaukee disposal costs by nearly $2 million per year using the average tons disposed. In response to these spiraling disposal costs, Sanitation management began developing a long range solid waste plan to help reduce the amount of waste sent to landfills while increasing the amount that residents recycle.

Self Help

Milwaukee has two of the largest self help drop off sites in Wisconsin serving more than 340,000 visitors each year. Residents brought 59,800 tons of debris to City self help sites and disposed of 1,300 tons of debris in weekend cleanup boxes.

Residential Collection

An economic downturn is frequently reflected in the amount of waste generated by residents. In 2009 City of Milwaukee residential properties disposed of 199,100 tons of household waste – 4% less than the previous year. Sanitation provides semi-automated cart and dumpster collection service to approximately 210,000 residential households including condos and city serviced apartment buildings.

Leaf Collection

Ideal fall weather conditions contributed to a very successful leaf collection program this year with crews collecting nearly 17,000 tons of leaves and garden debris to be composted by our contractor. Around 600 tons of leaves were taken to the City's municipal nursery to be used as compost.

Special Events

Sanitation staff is heavily involved behind the scenes in many of the major civic events that occur across the city during the year. Most of the summer festivals, runs and parades require barricades, litter cans and other sanitation support to be successful. In 2009 Sanitation played a major part in the popular Great Circus Parade, providing mechanical and hand street sweeping in the parade itself, as well as post-event cleanup.

Recycling & Waste Reduction

- 22,174 tons of residential recyclables collected
- 36,113 tons of 'green' waste including brush, leaves and yard waste diverted from landfill
- 5,010 tons of concrete recycled and 9,331 tons of clean fill dirt diverted to beneficial reuse
- Recycling program achieved and avoided disposal costs and revenue gain totaling $1.3 million

Recycle for Good Campaign

The Recycle for Good (RFG) campaign continued with radio, print and online ads, as well as 12 RFG logo wrapped recycling packers. Two RFG TV commercials were produced, featuring high profile community members Mayor Tom Barrett, Common Council President Willie Hines, Milwaukee Brewers pitcher Jeff Suppan and announcer Brian Anderson. Fox Sports Wisconsin ran the Brewers spot as a Public Service Announcement at no cost to the City.

Two RFG neighborhood campaigns were introduced in 2009 to increase recycling awareness in targeted neighborhoods. Campaign activities included door-to-door recycling outreach, the collection of recycling pledges, campaign articles in community newspapers, and the integration of campaign materials and information into community activities. The targeted neighborhoods led all areas in improvement in recycling participation with a 9.7% positive change in the percent of the total waste stream recycled.

Recycling Outreach and Education Activities

Outreach and education efforts focused on encouraging residents to reduce the amount of solid waste sent to landfills. Rick Meyers, Recycling Specialist was featured on two of WISN TV's "Going Green" segments, and in an interview aired on WUWM's Morning Edition with Bob Bach. Additionally, an informative fall newsletter was mailed to 190,000 residents and distributed to libraries and other public places. The debut of the new newsletter format in 2009 allowed for more content at reduced cost.

1 Links to these segments can be found at: http://www.milwaukeerecycles.com/
2 Article and audio file can be found at: http://www.wuwm.com/programs/news/view_news.php?articleid=5141

Recycling Facility Tours and Education
The number of participants in the City's recycling facility tours increased in 2009, with 2,315 students and 346 adults visiting Milwaukee's Materials Recovery Facility for an educational tour.

National Recycling Challenge
For the sixth year in a row, the City of Milwaukee won the national contest sponsored by the U.S. Conference of Mayors and Novelis Corporation. Over 40 competing cities collected 125 million cans with Milwaukee accounting for over 60 million cans with a weight of nearly 1.8 million pounds! Milwaukee has won $35,000 to date - $5,000 per year and another $5,000 for capturing the title of most innovative campaign in 2004 by breaking the Guinness World record for the longest line of aluminum cans. Lined up, they would stretch out over 2,380 miles, or from Milwaukee's City Hall all the way to Vancouver BC, Canada!

Associated Recyclers of Wisconsin Bin Grant
DPW received 400 new recycling bins which were labeled with Recycle for Good campaign signage and distributed as a part of the 2009 Recycle for Good neighborhood campaign.

American Forest & Paper Association Best Practices Feature
2009 recycling activities earned the City of Milwaukee status as a runner-up, top-three finisher for the American Forest & Paper Association Community Recycling Award. Paper comprises more than two-thirds of what is processed at the city's dual-stream Materials Recovery Facility. In 2009, Milwaukee recycled over 14,200 tons of paper products.

Electronics Recycling


This free 1-day event was made possible by Samsung Electronics America and CRT Processing and saved the City over $50,000. Residents dropped off 248,005 pounds of electronics to be responsibly recycled. The City of Milwaukee recycled over 705,000 pounds of electronics in 2009. E-Scrap is the fastest growing segment of the solid waste stream and poses a threat to environmental and human health due to toxic components such as lead, mercury, and cadmium.

The City of Milwaukee actively supported the passage of a producer responsibility electronics law in Wisconsin. The legislation passed in October of 2009, prohibits the disposal of certain electronics in the trash and created a statewide recycling program where manufacturers bear the primary financial responsibility for the recycling of banned electronics. The new law enables DPW to expand recycling collection at its Self-Help Centers to include previously prohibited items such as televisions.

Phonebook Recycling

DPW held a phone book recycling collection event with partners AT&T & UWM. 1,760 pounds of phonebooks were collected during the one-day event on October 21st, 2009.

Festival Recycling
In 2009 over 56,300 pounds of bottles and cans were recycled from events on the Henry Maier festival grounds and at other festivals serviced by DPW including Jazz in the Park, River Rhythms, Bastille Days, River Flicks, and more. From the 11 days of Summerfest alone, a total of 17,480 pounds of plastic or 209,760 bottles were collected and recycled. That amount equates to 273 cubic yards of landfill space!

Forestry

Urban Forest Management
Forestry Services is responsible for the maintenance and care of the City's urban forest which is made up of 193,000 street trees and 120 miles of boulevards and greenspace. In 2009, Forestry Services cycle pruned 34,240 trees, planted 4,985 new trees and removed 3,244 trees due to hazardous condition, disease or storm damage.

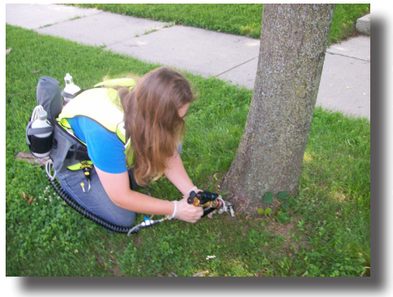
The Forestry Section operates a 160 acre city-owned nursery located in Franklin equipped with 30,000 ft of greenhouse space. The nursery grows the plant material used on city streets and boulevards including annuals, perennials, trees and shrubs. In addition, plant material is sold to neighboring municipalities and local organizations

Forestry Services completed multi-year comprehensive inventory to document and classify the city's street tree population. In 2009, 60,000 trees were inventoried bringing the total inventory to 193,000 street trees. The inventory geospatially documents the species, size, location, and condition of city street trees and enables efficient management and planning of the urban forest. For example, the completed inventory provided information necessary to conduct ash tree chemical inoculations. Without the street tree inventory, crews would have to drive the city block-by-block to locate ash trees for chemical injections. In addition, the inventory software provides efficiencies in daily operations through consolidation of work orders and data to support comprehensive management analyses.

America in Bloom Champions
The City participated in the 2009 America in Bloom national competition that promotes beautification and community enhancement through the use of flowers, plants, trees and other environmental enhancements. Communities compete in three categories: municipal effort, commercial effort and residential effort across eight scoring criteria including floral display, landscaped areas, urban forestry, environmental activities, community involvement, heritage preservation, tidiness, and turf and groundcovers. There are two opportunities for awards (1) communities compete for the eight national "Best of the Best" criteria awards among all participating communities and (2) communities compete based on population among other like-sized communities. Environmental Services saw America in Bloom as an excellent opportunity to showcase who we are, what we do and how we operate. Milwaukee was awarded the "Best of the Best" Urban Forestry criteria award. In addition, Milwaukee won the America in Bloom Champion award in the population 100,001 and above category. The awards honor and recognize the contributions made everyday by our staff, our corporations, community organizations and residents.

Tree Benefits Campaign
The Forestry Section conducted an outreach campaign to raise public awareness of the benefits of Milwaukee's urban forest. The campaign used outdoor digital billboards located along Interstates 94, 43 & 45 and was comprised of 12 tree benefits messages highlighting storm water reduction, air quality, energy savings, Emerald Ash Borer awareness and social benefits. The digital media provided cost-effective advertising that allowed for multiple messages on a rotating frequency as compared to traditional vinyl billboards. To conduct the same campaign using traditional billboards would have been cost-prohibitive due to the production cost of each vinyl (one per message) plus the cost of the board space. The campaign aired from April 22-August 14, 2009 with 65% of air time provided as value-added worth an additional $23,373. The campaign was implemented with grant support ($25,000) from the Wisconsin Department of Natural Resources.

Emerald Ash Borer
Since the discovery of Emerald Ash Borer (EAB) in metropolitan Detroit in 2002 and prior to the detection of EAB in Milwaukee County in August 2009, the City of Milwaukee has been working to develop strategies that would best position the City for the eventual arrival and management of the "Green Menace."



Milwaukee's readiness and response plan for EAB includes five major components: host inventory, early detection, forest health, wood waste utilization, and reforestation. Each component in Milwaukee's strategy is mutually dependent upon the host inventory as the cornerstone

Host Inventory
Milwaukee is pursuing a three-pronged strategy to inventory its ash population. A comprehensive geospatial street tree inventory completed in 2009 identified 33,000 ash street trees at risk. A UFORE (i-Tree Urban Forests Effects Model) canopy assessment project completed in 2008 quantified the number of ash trees in Milwaukee at risk of EAB (587,000) and their associated ecological service benefits. The third prong of

Milwaukee's host inventory and early detection strategy applied advanced canopy assessment and geospatial technology, including high-resolution remote-sensed Hyperspectral Imaging (HSI), in conjunction with GIS analytical tools, to geospatially map the location of ash species in the city.

Ash Tree Inoculations – Year 1
To manage public safety risks associated with Milwaukee's 33,000 ash street trees, the Forestry Division initiated an ash street tree injection program in May 2009. The program targets ash trees 8 inch (20 cm) DBH or larger (approximately 28,000 trees) and provides two years of protection. Ash trees smaller than 8 inch DBH (approxi¬mately 5,000) will be preemptively removed and replaced with resistant species.

The Forestry Division plans to inject one-half of the ash street tree population annually over a period of many years while transitioning to alternative species. This strategy will allow forestry to effectively manage public safety risk associated with EAB and progressively remove 33,000 ash street trees on a schedule that does not significantly disrupt other important forestry operations such as pruning, tree planting, dead and hazardous tree removals, and boulevard beautification.

A total of 13,206 ash street trees were inoculated in 2009.

Sustainable Boulevards – Phase II Implementation
Forestry Services developed a plan to protect the City's 120 mile landscaped boulevard system. The 3-year plan restructures the boulevard system by increasing tree canopy, adding large landscaped "signature" beds at strategic locations throughout the city, removal of low-impact flower beds to be replaced with trees and turf and conversion to an automated irrigation system.

The first two phases, completed in 2008 and 2009, respectively, removed approximately 1,200 low-impact landscape beds along 80 miles of boulevard and added 188 new signature beds at strategic locations. A total of 960 new shade trees were added to replace flower beds removed. Phase III will be completed in 2010. The City's budget allocation of 1.6 million to construct the new signature beds is leveraged by Milwaukee's municipal nursery, which grows most of the plants required to support Sustainable Boulevards at a substantial savings over comparable wholesale purchase.

the plan included the replacement of 1,800 annual beds with turf and shade trees. Additional mowing acreage represents a relatively low incremental maintenance cost. Once established, the new shade trees will be integrated into the city's 5-year pruning cycle.

These combined efficiencies will enable the City to reduce its seasonal workforce by 18 employees once Sustainable Boulevards is fully complete, at a savings of approximately $180,000 annually, and ensure the longevity of Milwaukee's boulevard system for years to come.

BEFORE

AFTER

Green Schools
Green Schools is an extension of an award-winning program to create playable green space for children by replacing portions of asphalt playgrounds with trees and turf. Green Schools retrofitted 10 Milwaukee Public Schools playgrounds in 2009 by removing a total of 77,100 square feet of asphalt and planted over 300 trees. To participate, schools completed an interest survey and were ranked according to their location within the city's combined sewer area (roughly bounded by Capitol Drive to the north, Holt Avenue to the south, 60th Street to the west and Lake Michigan to the east); ratio of existing hard surface to soft surface; ability to contribute funding and incorporation of the green space into school activities and curriculum.

The list of Green Schools includes:

- .....Milwaukee Spanish Immersion School
- .....Humboldt Park School
- .....Sherman Multicultural Arts School
- .....Hartford University School
- .....Pierce Elementary School
- .....Greenfield Elementary School
- .....Milwaukee French Immersion School
- .....Hawley Environmental School
- .....Urban Waldorf School
- .....Lincoln Center for the Arts

Green Schools is a partnership with Milwaukee Public Schools. Forestry Services thanks Senator Herb Kohl and his staff for their support. Green Schools was funded through grants from the USDA Forest Service and the CERES Foundation.

Milwaukee Spanish Immersion BEFORE

Milwaukee Spanish Immersion AFTER

Code Enforcement
Forestry Services also performs code enforcement of noxious weed, tall grass, hazardous trees, encroachment and snow & ice ordinances on public and private property.
In 2009, the following code enforcement violations were issued:

- Hazardous Tree Condemnations – 842 notices issued
- Noxious Weeds – 7,648 property complaints inspected
- Encroachments – 637 notices issued
- Sidewalk Snow/Ice – 2,861 property complaints inspected

Arbor Day Celebration
To mark the success of Green Schools, Milwaukee Spanish Immersion School hosted the City's 44th annual Arbor Day Celebration on April 24, 2009. The green retrofit at MSIS removed 15,400 square feet of asphalt and planted 50 trees. The event featured song and dance performances by MSIS students in honor of trees and their benefits and a ceremonial tree planting.

Mayor Tom Barrett was joined by Rebecca Young from the office of Senator Herb Kohl, Principal Yvette Martel, Jeff Weatherly, Regional Forestry Leader, Wisconsin Department of Natural Resources; and Gina Spang, Director of MPS Facilities and Maintenance. During the ceremony the City was presented with its 30th consecutive Tree City USA award, a milestone few cities have achieved, and a Tree City USA Growth award. .

City/County Christmas Tree
The 96th annual lighting ceremony for the joint City/ County Christmas Tree was held on November 19th at Red Arrow Park. The Christmas tree, a 38-foot Colorado blue spruce was donated by north side resident Nancy Bartol and harvested by Forestry staff on November 11th.

Community Gardening
A demonstration vegetable garden was installed at the Zeidler Municipal Building to increase community awareness of urban agriculture and encourage neighborhoods to grow healthy fresh food on vacant lots. Forestry Services partnered with Growing Power to construct the demonstration beds. Harvested vegetables (185 lbs) were donated to Second Harvest of Wisconsin.

Fleet

The Fleet Services section consists of two divisions, Operations and Repairs. The goal of Fleet Services is to provide responsive, flexible, efficient and comprehensive fleet services and dispatch operations to support the delivery of public programs and services for the City of Milwaukee. The division also provides vehicle and equipment specifications, purchasing services and equipment disposal services for most City departments.

Fleet Operations schedules approximately 400 operators, support people and laborers, plus vehicles and equipment on a daily basis for most of the DPW work force, and many other departments. Fleet Operations provides several levels of driver training and testing, plus investigates and manages vehicle accidents. Over 2.2 million gallons of fuel is dispensed at 17 sites throughout the City, plus one fuel truck. Fleet Operations also provides motor pool and equipment rental services to many City departments.

Fleet Repairs manages and maintains approximately 4,100 pieces of equipment, with 2,600 motorized units, including over 800 vehicles for the Milwaukee Police Department. Fleet Services repairs and maintains equipment at five locations on two shifts, with a staff of highly-skilled technicians and support people. Fleet Repairs endeavors to maintain fleet equipment availability at 95% for light duty and Police equipment, and 90% for heavy equipment at all times.

The effectiveness of Fleet Services impacts the delivery of nearly every service provided to the public, the productivity of nearly every employee and operation, and timely response of emergency services. This, in turn, helps to support and maintain the public infrastructure, which sustains the local economy and improves the quality of life.

Fuel System Upgrades
Fleet has continued to move away from the two-card fueling system in favor of the automated fueling system for all new vehicles. The Fuel Focus automated fueling method uses only the employee ID card, and does not require the driver to enter any vehicle information such as the vehicle number and odometer reading. This system was installed on 409 vehicles in 2009. Each vehicle is now equipped with RFID technology to capture accurate mileage and other data, providing more accurate fueling information and cost tracking.

Green Fleet Initiatives
As global non-renewable energy stocks dwindle and fuel prices increase, any efforts to improve air quality must demonstrate sound financial management as well as environmental sustainability. Fleet is involved in many facets of "Greening the Fleet", including:

- Reducing Fleet Emissions, with installation of diesel oxidation mufflers (DOC's) on older fleet vehicles, using cleaner-burning soy and corn based biodiesel fuel in all diesel equipment, and purchasing cleaner vehicles whenever possible.

- Conserving Fuel, through training programs such as Eco-Driving, a cooperative effort with Wisconsin Clean Cities and MATC, plus other initiatives such as idle-reduction programming on all new trucks purchased since 2006, the installation of idle-reduction devices on older trucks, and the use of efficient LED vehicle lighting on most trucks and vehicles.

- Purchase of Hybrid Vehicles, which greatly reduce fuel consumption through the use of electric-assist propulsion, and reduce maintenance costs through regenerative braking systems, which harness the power generated when stopping a vehicle by super-charging the on-board batteries while braking.

Other Green Initiatives include everyday practices such as:

- Recapping Tires: 798 per year
- Recycling Tires: 65 tons per year
- Recycling Automotive Batteries: 950 per year
- Recycling and/or reusing drain oil for supplemental heat in facilities
- Crushing used filters to drain excess oil prior to recycling the filter

New Equipment Purchases
Notable equipment purchased in 2009 includes:

- 12 **hybrid passenger cars** for various departments, which average approximately 40 MPG. These cars shut the engines off while stopped and utilize regenerative braking, and are assigned mainly to high-mileage users. The use of hybrid cars virtually doubles the mileage when compared to other similarly sized cars in the fleet.

- One **hybrid aerial lift** for Infrastructure, for use in installing and maintaining street lighting systems. This truck utilizes a 330-volt lithium-ion battery pack to help propel the truck and power the hydraulic system. When in use at the job site, the engine shuts down while the battery-powered system is at work, which greatly reduces the noise level generated by conventional trucks.

- One **platform welder truck** for use by Infrastructure in maintaining bridges and other steel structures. Unlike past trucks, the new diesel-powered welder is extremely efficient and quiet.

- Four **5-yard dump trucks** with material spreaders, under-body plows and front-mounted plows. These trucks are the first responders in snow and ice control operations, each with microprocessor controlled material spreading controls for precise anti-icing operations based on conditions.

- Seven 16-yard **tri-axle dump trucks**, retrofitted with extra capacity material spreaders. These trucks are used mainly on long stretches and main roads for ice control and snow removal.

- One **3.0 yard endloader** for all operations throughout the year.

- One multi-purpose **skid-steer loader** with various tree planting and harvesting implements, for use by Forestry at the Municipal Nursery.

Facilities Development & Management

Operations and Maintenance (O&M) Sections provides different types of valued-added building services to facilities under the authority of the Department of Public Works. The scope of services are performed by a skilled staff of janitorial and mechanical technicians to keep the entire built environment maintained and in a condition to meet their intended function during their life cycle. These activities include preventive and planned maintenance tasks necessary to ensure that all building materials and systems are properly functioning as prescribed by maintenance serviceability standards. The goals of our comprehensive maintenance programs include: reducing capital repairs, reduce unscheduled shutdowns and repairs, extend equipment life, realize life-cycle cost savings, and provide safe and functional systems and facilities that meet the design intent.

The O&M section is also engaged in various energy efficiency projects to control energy consumption and operating costs. Our O&M energy team identifies significant initiatives for energy efficiency improvements that contribute to no and low-cost upgrades and integrations, resulting in continued energy and operational efficiencies, which support the Mayor's sustainability goals.

The Architectural Section is made up of Architects, Engineers, Drafting Techs and Support personnel. These professionals are responsible for all capital projects funded through the Facilities Section as well as capital projects funded through other city departments and agencies. They are a dedicated group that has accomplished remarkable things once again in 2009. Following are just a few of the projects managed by this section.

To better serve DPW Sanitation's winter de-icing needs serving the Northwest side of the city, FDM constructed a salt dome on the property just South of the Northwest Garage facility. The property parcel had been previously purchased from the Eaton Corporation. The structure is a 116ft diameter wood panelized dome super structure sitting on a 12ft 6in high perimeter concrete wall. The dome includes ample lighting for evening operations, with flood lights, wall mounted and overhead lighting in the dome, lighting at the entrance as well as four skylights providing natural lighting for daytime operations. A rain garden was installed, to the East of the salt dome, to collect water from the salt dome thus eliminating soil erosion from storm run-off and adds an aesthetic appeal with woody and perennial plantings with low maintenance requirements. The project also included the replacement of the existing calcium chloride holding tank with the construction of a new concrete containment tank of 42in walls that houses two new 6500 gallon polyethylene tanks.

The **Mechanical Design Unit** has engineering professionals which lead DPW in managing and/or coordinating the planning, programming, design and construction process of mechanical systems for existing and new City owned buildings. We provide engineering design services for HVAC, plumbing, fire suppression, fire detection, elevator modernization, electrical equipment, asbestos abatement, lead paint abatement, renewable energy systems and other complex building mechanical systems projects. We also provide design services for the City-wide fuel dispensing systems that meet the Environmental Protection Agency and State of Wisconsin Department of Natural Resources required.

The Mechanical Design Unit's staff was directly involved with Transwestern Sustainability Services in the LEED EB: O&M Silver Certification of The Milwaukee City Hall Complex, project ID #10003635, from project inception, through its certification on September 8, 2009. The staff's role was to provide information about the complexes mechanical systems (schedules, drawings, etc) and assist us with tasks related to energy and water. The City is proud to further its Green leadership by attaining LEED-EB: O&M Silver certification for the City Hall Complex.
In doing so, the city continues:
1) To help transform the market
2) To be a recognized environmental leader
3) To raise consumer awareness of the benefits of sustainability and Green buildings.

The **Communications Unit** consists of journeyman electrical mechanics, electrical workers and laborers, and provides and maintains the City's copper cable plant and fiber optic backbone for data and telephone transmission. Our staff is responsible for the maintenance of the City's telephone system, street lighting control circuitry, various alarm systems, public address systems, the Community Safety Wide Area Network serving the Fire and Police Departments Dispatch Systems and Police call boxes.

Communications continues to be in the forefront of the fiber optic and local area network hub technologies linking DPW, other City Departments plus other government and educational facilities. Our mobile Fiber Optic splicing vehilcle allows for on site splicing across the city.

In 2009, Communications installed approximately 8.0 miles of fiber optic cable to enhance the City's data and telecommunication network. Only a few other municipalities in the nation own and use a community fiber network such as the one Communications is responsible for. The most significant construction project impacting Communications in 2009 was the Interstate Highway 94 North-South Corridor Project. Activities started in 2008 on the West College Avenue Structure and the West Grange Avenue Structure, both of which have been completed in 2009. With the West College Avenue Structure complete, the restoration of the Communications Cables can be scheduled.

The **Electrical Services Section** is made up of skilled electricians, most of whom hold the Master Electrician credential. This section has been diligently engaged in saving the City taxpayers thousands of dollars in electrical costs. Since 2005, DPW Electricians have installed hundreds of motion sensors, highly efficient light fixtures, and implemented numerous other electrical strategies to reduce energy costs. Below is one example of how new light fixtures were installed, providing a higher quality of light at a lower cost to operate.

The **Recreational Facilities Unit** provides the City of Milwaukee with neighborhood green spaces in which residents can enjoy a variety of activities, leisure and cultural events. The Recreational Facilities Unit takes pride in operating, maintaining and reconstructing forty-eight active areas and eleven passive areas that play a significant role in improving quality of life for the residents of Milwaukee. DPW's recreations staff, in corroboration with Milwaukee Public School officials, also provide design and reconstruction services for thirty-seven MPS play fields.

The **Security Section** of Facilities Development & Management is responsible for a wide range of services and solutions aimed at managing risk and mitigating loss and damage to the City of Milwaukee's property and personnel. The Security Section also aims to quantify and report on incidents, analyze the data and identify trends. Information gained from this analysis can provide a basis for management decisions. In addition to security, this section also includes the City Hall Operators and the City-wide services they provide. Physical security & access control, technical security, emergency management, safety, and professional security consulting for internal customers are a few of the services that the Security Section of Facilities provides.

In 2009 the Security Section:
- Increased reporting and documentation from our security guard vendor. Daily activity & incident reports are now reviewed and disseminated, when appropriate, within this division and beyond.
- Modified access control procedures and technology at Northwest Garage to better secure the facility during times it remained unattended.
- In line with industry trends, network security cameras became the standard for new installations, setting the stage for a number of system enhancements in 2010.
- Implementation of automated messaging in the fire alarm system allowed for clearer & immediate feedback to building occupants in the City Hall Complex.
Combining access control data with video surveillance can be a powerful analytical and investigative tool: Using the Truck Wash card readers rotates the camera to the wash.

INFRASTRUCTURE SERVICES DIVISION

Jeffrey Polenske,
City Engineer

Who We Are

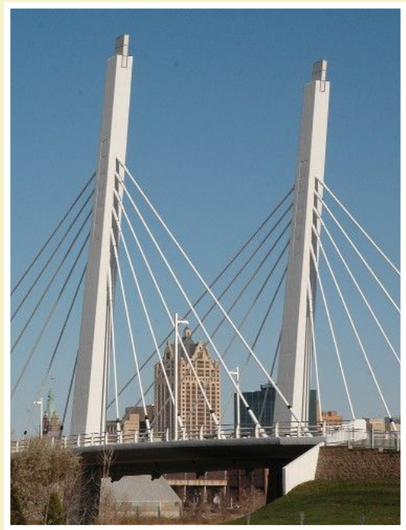
Infrastructure Services Division is a front-line operational department that is responsible for the design, construction and maintenance of streets and alleys, bridges, traffic signals and signs, street and alley lighting, and sanitary and storm sewers. This Division undertakes a variety of tasks related to transportation planning, ranging from non-traditional projects such as traffic calming to major roadway improvements. Additionally, this Division is involved in almost every major private development that occurs citywide as it schedules projects and provides services that are vital to the growth, safety, comfort and quality of life within our community.

Zeidler Municipal Building
841 North Broadway,
Room 701

Clark Wantoch,
Administration & Transportation Design Manager

Martin Aquino,
Engineer-In-Chief
Environmental Section

Dale Mejaki,
Infrastructures Operations Manager



Administration

The Administration Unit is responsible for business operations, budget coordination, personnel administration, accounting and clerical functions, and the Equal Employment Opportunity administration for the Infrastructure Services Division.

In addition to processing payments and monitoring construction contracts, the Administration Unit provides support to the other areas of the Infrastructure Services Division on financial matters. The Unit recorded and monitored expenditures that included payments to contractors, cost of City provided materials used in projects, as well as the salaries and benefits of City employees involved in the planning, implementing and managing of the projects.

Transportation

The Transportation Unit is responsible for programming street and alley improvements using city, state and federal funds; design of public way lighting, traffic control signals, signing and pavement markings; transportation planning; reviewing utility easements; coordinating public improvements in tax incremental districts; reviewing building permits and processing permits for street encroachments; locating bus passenger loading areas, designing handicapped access ramps in sidewalks; maintaining various city maps; operating a "Diggers Hotline" service; coordinating reviews of subdivision plats, certified survey maps, and opening and closings of public rights of way; coordinating transportation improvements with other governmental agencies and railroad companies; representing the City Engineer and/or the Department of Public Works on transportation issues; and undertaking engineering studies and investigations for the Common Council and other city departments.

Project Programming Unit
Administration of the City of Milwaukee's $12.1 million capital paving budget by the Project Programming unit resulted in the approval of 62 street paving and 6 alley projects in 2009, and the award of $7.5 million in contracts for local streets and alleys.

Project Programming staff appeared before the Common Council's Public Works Committee for public hearings on 75 assessable paving, new sewer and new water projects. In addition, resolutions were prepared to authorize engineering and construction on approximately 650 assessable and non-assessable public improvement projects. Upon completion of the work, the Unit reviews assessments, prepares and issues the associated special assessment bills to the property owners affected by the work. In 2009, the unit issued 1,770 bills resulting in $1.7M in revenue to the City.

As a result of the $20 Motor Vehicle Registration Fee approved by the council in 2008, nearly 100 percent of the projects proposed to the property owners were approved, noting that the only ones deleted were traffic calming speed hump projects.

Major Projects Unit
The Major Projects Unit coordinated the funding and design of several Federal Stimulus paving and bridge projects in 2009 at an approximate cost of $26 million funded under the American Recovery and Reinvestment Act (ARRA) for construction of these projects. The major Federal and/or State paving and bridge projects include the following:

- West Oklahoma Avenue from South 72nd Street to South 60th St.
- West Lisbon Avenue from North Sherman Boulevard to Soo Line Railroad
- West State Street from North 27th Street to North 17th Street
- East/West Keefe Avenue from North 7th Street to North Humboldt Avenue
- South 1st Street – East Lincoln Avenue to South Kinnickinnic Avenue
- West Vliet Street Bridge over the Canadian Pacific Railroad
- North Sherman Boulevard Bridge over West Silver Spring Drive to North Florist Avenue
- North Sherman Boulevard Bridge over West Silver Spring Drive
- South Cesar Chavez Drive from West Greenfield Avenue to West Pierce Street
- South 2nd Street (Decorative Lighting) from West National Avenue to West Greenfield Avenue
- East/West North Avenue from North Martin Luther King Drive, Jr. to North Booth Street
- South 13th Street from West Cleveland Avenue to West Windlake Avenue

Street Lighting Unit
As part of the City's Capitol Improvement Program, plans were prepared for street lighting alterations

and upgrades that were to be done in conjunction with regular paving projects. Lighting work done in conjunction with the Department's Capital Improvement Program, as well as paving projects funded under the American Reinvestment and Recovery Act (AARA), included the installation of overhead circuitry prior to construction to maintain adequate light levels during construction, protecting and adjusting facilities during construction work, and where necessary, the installation of new street lighting cable and the upgrade of electrical circuitry and components.

In 1987, an initiative was begun to convert all mercury vapor and incandescent street lighting in the City of Milwaukee to more energy efficient high-pressure sodium lighting. In 2009, a total of 92 streetlights in the City were converted to high-pressure sodium lighting. With this work, approximately 96 percent of the City's inventory of 67,798 streetlights in the City of Milwaukee has now been converted to high-pressure sodium.

Historic Milwaukee lanterns and harp lights continue to be installed in conjunction with streetscape, redevelopment and neighborhood and business district beautification projects. In 2009, grant funds or private funding was used to provide historical lighting as part of the neighborhood and business district improvement projects. An example of a lighting project of this type completed this year is The Brewery Phase II. Other ongoing projects are West Wisconsin Avenue from N. 2nd Street to the Milwaukee River, and West Capitol Drive from North 27th Street. to North 35th Street.

Work has continued on the installation of street lighting on City streets affected by roadway improvements made in conjunction with the North-South Freeway (Mitchell Interchange) reconstruction. Temporary and permanent street lighting improvements are being coordinated with Wisconsin Department of Transportation contractors as work on the interchange project progresses. Street Lighting work will continue in 2010 for the remaining segment of the project.

Traffic Control Unit
Five new traffic signals were installed in 2009 at the following locations:

- ..... West Vliet Street and North 40th Street
- ..... North Broadway and East St. Paul Avenue
- ..... East Burleigh Street and North Humboldt Avenue
- ..... West Roosevelt Street and North Teutonia Avenue
- ..... West North Avenue & North 38th Street

Additionally, a temporary traffic signal at South Ramsey Avenue & South 13th Street was installed due to ramp and roadway closures on the North-South freeway project, which was subsequently removed when the closures were complete.

The program to change incandescent light bulbs to energy-efficient Light Emitting Diodes signal indications (LEDs) continued in 2009. LEDs use less energy, which in turn reduces air pollution, and are brighter than incandescent bulbs. Only a small number of traffic signals still need to be changed to LEDs, and those installations are planned to be completed in 2010.

During 2009, the unit coordinated the signing, maps, and traffic control for approximately 1000 special events which included bike races, festivals, filming, marches, parades/processions, parking events, runs, walks, block parties, and many other activities affecting the use of City streets. The unit also coordinates the traffic control for all utility and construction work in City streets, making sure that special events and construction work do not overlap.

Planning And Developments Unit
The Planning and Developments Unit undertakes a variety of tasks related to transportation planning, ranging from non-traditional projects such as traffic calming to arterial roadway and freeway improvements. This unit is involved in almost every major private development that occurs Citywide. This unit works closely with other City departments, elected officials, state and county departments, private organizations and the general public. The following is a sampling of work activities that were undertaken in 2009.

In 2009, assistance was provided to the Wisconsin Department of Transportation with regard to traffic mitigation, utility relocation and administration during the reconstruction of the Mitchell Interchange and the I-94 North/South corridor.

Planning and Developments continued its involvement with the Milwaukee Neighborhood Traffic Management Program. Over 100 inquiries were responded to in 2009, resulting in dozens of meetings with neighborhood associations regarding speeding on local streets. This ongoing program resulted in numerous speed humps being constructed throughout the City, as well as non-engineering solutions being implemented to address speeding traffic.

The preliminary designs and estimates were completed for work on the northbound on-ramp to I-794 at Carferry Drive for the purpose of widening the on-ramp for future transportation of large windmill pieces. Construction is anticipated to occur in 2010.

The Planning and Developments unit works with different neighborhood associations and Business Improvement Districts to implement streetscape and beautification projects. Such projects include the Downer Avenue Streetscape which consisted of replacing brick in the sidewalk, and repaving the street.

Additional Projects in Planning and Development Phase:

- Support new bike initatives
- Redevelop Menomonee Valley
- Winnebago Street Roundabout
- South Cesar Chavez Drive Streetscape
- Hank Aaron West Allis Extension
- Safe Routes to School Project

This unit continued its role as liaison with the various railroad entities doing business in the City in matters of crossings, structures, and right-of-way improvements.

Central Drafting And Records Unit
The Central Drafting and Records Unit is responsible for maintaining the one-quarter section maps within the corporate limits of the city, and those areas outside of the city in which the Milwaukee Water Works provides service and maintains facilities. The maintenance of these maps, along with maintenance of the official maps, aldermanic district maps, police district maps, address assignment maps; and the preparation of state and city paving plans, bridge plans, street lighting plans, circuit maps, traffic signal plans, traffic control and pavement marking plans, underground conduit plans, and other specialty maps and exhibits are accomplished with the use of an interactive computer graphics system.

Additional duties of Central Drafting and Records Unit includes: the operation of a "Diggers Hotline" service to assist in the location of City of Milwaukee utilities in the public way; the preparation of legal descriptions and maps for openings or closings of public rights-of-way; maps for annexation to or detachment from the City of Milwaukee; the review of certified survey maps and subdivision plats; the assignment of addresses; the review of honorary and official street name changes; checking and optimizing routes for oversize and overweight loads; sales of maps; performing traffic counts and surveys; providing printing services for various City departments; and maintaining an office supply facility for the Transportation and Administration Section.

In 2009, 16 plans and petitions for the vacation of public ways were prepared. The Unit also processed 1 subdivision plat and 58 certified survey maps; drafted 205 paving plans for 88 separate paving projects; 12 bridge structure projects and 14 state paving projects; defined 642 routes for excessive size-weight vehicle permits; and acted upon 56,581 requests from Diggers Hotline to locate the City's underground electrical and water main facilities and 1,255 requests for utility plan information.

City Underground Conduit
During 2009 an additional 6,510 lineal trench feet of conduit packages were installed, 3,584 lineal feet of conduit packages were replaced.

New Conduit was installed at the following locations:

West Bolivar Avenue – South 6th St to a point east
South Howell Avenue/South Chase Avenue – East Howard Avenue to East Ohio Avenue
South 27th Street – West Layton Avenue to West Bolivar Avenue

Existing Conduit was replaced at the following locations due to conflicts with construction/paving projects:

West College Avenue – South 20th Street to South 13th Street
West Grange Avenue Bridge – over I-94
West Good Hope Road Bridge over Little Menomonee River
West Wisconsin Avenue @ North Plankinton Avenue
North 39th Street – West Lisbon Avenue to a point north
South 43rd Street – West Oklahoma Avenue to West Forest Home Avenue
South 1st Street – East Pittsburg Avenue to East Seeboth Street

Field Operations

The Field Operations Section operates, maintains and repairs the many infrastructure facilities located in the public way. Responsibilities of the Field Operations Section include:
• Maintenance of the City's streets, alleys and sidewalks
• Design of street, alley, sidewalk and bridge

improvement projects
• Construction management and inspection of street, alley, sidewalk, bridge, sewer
and water improvement projects
• Construction and maintenance of all public-way lighting, traffic control signals, traffic signage and pavement markings
• Operation of the Inventory/Stores function for Street Maintenance, Sewer Maintenance, Underground Services, Electrical Services and Water Works, including materials, parts, tools and supplies
• Inspection of permitted utility construction and occupancy in the public way

Streets and Bridges Unit
The Street Maintenance Section administers three types of maintenance contracts; pavement seal coating, crackfilling and asphalt pavement resurfacing. We have completed our tenth season of the "Slurry Seal" method of seal coating asphalt pavements. Again this years' program was a success, receiving favorable public and Aldermanic reaction while receiving very few complaints. City streets received 234,236 square yards of "Slurry Seal" in 2009. Under the Crackfilling Contract a contractor crackfilled 560,874 square yards of pavement throughout the city utilizing a rubberized joint seal. Asphalt resurfacing occurred on East Locust Street between North Humboldt Avenue and North Bartlett Avenue, the intersection of North 60th Street and West Good Hope Road, West Becher Street between West Forest Home Avenue and South Muskego Avenue, South 3rd Street between West Grange Avenue and West Edgerton Avenue, and South 6th Street between West Layton Avenue and West Edgerton Avenue where 4316 tons of asphalt were placed. In an effort to eliminate most of the rutting and shoving that is typically seen at intersections and in high traffic areas superpave asphalt was utilized on this projects.

The Bridge Maintence Section is responsible for some 220 bridges maintained by the City of Milwaukee. Bridge Maintenance personnel conduct routine daily and seasonal maintenance and respond to bridge emergencies 24 hours a day, 7 days a week. City structures span navigable waterways, tributaries in the extended watershed, and highway or railroad grade separations. Most critically, the City operates 21 movable bridges on a year round basis in full compliance with the Federal Code of Regulations Title 33: Section 117.1093.

The Bridge Maintenance crews are responsible for regular and preventative maintenance associated with our movable bridges, fixed bridges and viaducts. These duties include repair or replacing failed expansion joints, removing delaminating concrete, cut and patch concrete flaws, snow removal from the sidewalk area of our bridges and viaducts, graffiti removal from City owned structures, weed removal & grass cutting along bridge approaches, cleaning of drains along our bridges, cleanup of pedestrian bridges and the cleaning of expansion joints at the ends of our bridges & along the entire length of our viaducts. Several expansion joints on City bridges have been repaired and/or replaced. The failing expansion joints are repaired by removing any delaminated concrete and then repairing the concrete adjacent to the expansion joints. Offsets between numerous bridge structures and the adjacent roadway sections were repaired

Structural Design Unit
The Structural Design Unit designs and prepares contract documents and performs construction administration for a wide variety of projects involving bridges, retaining walls, parking structures, riverwalks, and other structures. The unit develops a Capital Improvement Program and performs safety inspection for all city maintained bridges and city owned parking structures. The unit also investigates and provides condition reports and recommendations for City owned buildings and structures. It also maintains plans and other records for the city's bridges, parking structures, retaining walls, dock walls, riverwalks, and other structures.

Construction work continued on the rehabilitation of the historic Kilbourn Avenue Bascule Bridge over the Milwaukee River to upgrade the structural, mechanical, and electrical components of the bridge. The bridge was opened to traffic on a limited basis on March 30, 2009 and was fully open to traffic on May 22. The Kilbourn Bascule Bridge is the second oldest remaining Milwaukee style trunnion bascule bridge and has been determined to be eligible for inclusion in the National Registration of Historic Places. The bridge was closed to traffic in the summer of 2007 after the adjacent State Street Bridge was reopened to traffic.

A contract for the replacement of the Highland Boulevard Bridge over the Canadian Pacific Railway (CPRR) was let in July 2008. The new bridge replaces a structure built in 1909 that has served as a main gateway to downtown; the nearby Harley Davidson and Miller Coors corporate plants, local businesses and residential neighborhoods. The new bridge is a three span precast, prestressed girder bridge with aesthetic upgrades incorporated in the bridge railing and vertical wall surfaces of the piers, abutments, and retaining walls. The bridge was open to full traffic on October 28, 2009 in a ribbon cutting ceremony attended by the Mayor, local alderman, other dignitaries, residents, and nearby business owners.

A contract for the replacement of the Humboldt Ave. Bridges over Riverboat Road and the Milwaukee River was let in August 2008. The Riverboat Bridge will provide increased vertical clearance under the bridge while maintaining an adjacent ramp for access to Riverboat Road. The bridge over the Milwaukee River will be a two span precast, prestressed girder bridge with overlooks at the middle of the bridge for pedestrians. The two bridge replacements incorporate increased roadway widths, aesthetic upgrades to the bridge railing, and stained concrete stone formlined retaining walls and abutments. The two bridges were let as one project so as to minimize traffic disruptions to the area. Construction continued in 2009 after overcoming delays caused by differing soil conditions, unforeseen utility conflicts, and modifications to the foundation system. Both bridges are planned to be completed by June of 2010.

A contract for the replacement of the Forest Home Avenue Bridge over the Kinnickinnic River was let on March 10, 2009. The existing bridge was designated a historic structure and was replaced with a bridge matching the original geometrics and aesthetics incorporating lannon stone veneer on the bridge parapets and exterior wall facade. Construction for this project started on May 6 and the bridge was open to traffic on November 25. Final landscaping and sealing of the stonework will be completed in spring of 2010.

Construction Unit
The Construction Unit administers all facets of the construction of paving, sewer, water and grading projects. This includes construction inspection, materials administration and inspection, contractor payments, erosion control plan approval and inspection, as-built plans of record, maintaining a 156,000 record Road Life database and construction management. The Field Engineering Area performs existing roadway surveys, designs, as-built certificates and construction staking.

Sewer construction totaled $38.9 million for 61 contracts and water main construction consisted of 9 contracts that totaled $5.2 million. Inspection was provided for various suburban and private water main installations.

Local Paving:
In 2009, local paving work consisted of 29 street paving contracts totaling a contract cost of $7.1 million and covering 13.5 miles.
State Paving:
The Construction Unit also performs administrative duties on Wisconsin Department of Transportation (WisDOT) projects within the City of Milwaukee. These functions include construction management, design, inspection, contractor payment estimates, materials monitoring and reporting, as-built measuring and certificate completion, and wage/labor verification. For select projects, survey and design duties were also performed.

Nine WisDOT paving/bridge projects were completed this year:
•West Forest Home Avenue Kinnickinnic River Bridge
•West Capitol Drive, West Atkinson Avenue and North Teutonia Avenue Streetscaping
• West Bluemound Road from the Zoo Freeway to North Mayfair Road
•South Howell Avenue/South Chase Avenue from East Howard Avenue to West Ohio Street
•West Hampton Avenue Bridge over Lincoln Creek
•West Vliet Street and North 40th Street Intersection
•West North Avenue from North 31st Street to North 40th Street (2nd half)
•West Kilbourn Avenue Bridge over the Milwaukee River
•West Highland Boulevard at Soo Line Railroad Underpass

Electrical Services Unit
Electrical Services is proud to serve the City of Milwaukee by overseeing the operation, maintenance and installation of facilities and equipment related to street and alley lighting, traffic control signals and street signage.

Traffic Signal Services
The Traffic Signal Services operates and maintains 743 controlled intersections in the City of Milwaukee. 2009 accomplishments included:
- Installed five new controlled intersections at:
..... North 40th and West Vliet Street
.....North 38th and West North Avenue
.....North Broadway and East St. Paul Avenue
.....North Humbolt Blvd and East Burleigh Street
..... North Teutonia Avenue and West Roosevelt Drive
- Installed one new temporary traffic controlled intersection at South 13th & West Ramsey Avenue due to traffic pattern changes from the N/S I-94 freeway project.
- Continued work on LED traffic signal intersection conversion. Conversion to this new energy efficient technology is now 98% complete.
- Installed and provided the necessary power service for eight new locations for the Milwaukee Police Dept security camera project.
- Installed two solar powered radar speed control signs on West State Street in the Miller Valley.
- Installed temporary overhead wiring at 35 locations to accommodate paving and other construction projects.

Machine Shop
The Machine Shop provides the support for routine and specialty machining services for the Electrical Services Unit. 2009 accomplishments include:
•Repaired numerous poles and bases for the freeway projects
• Constructed adapter plates for Wisconsin Avenue light poles for holiday lighting
•Designed and built mounting plates for new parking meter pay stations
•In-house repair of directional boring machines for additional cost savings to the Department of Public Works
•Continued support of Electrical Services crews with fabrication of materials for construction and maintenance

Traffic Sign Shop
The Traffic Sign Shop oversees the fabrication, inventory, installation and maintenance of all the traffic, parking and specialty signage in the City, as well as the painting maintenance of all traffic center lines, lane lines and crosswalks. The Traffic Sign Shop accomplished the following in 2009:
•Completed the painting of 1,469 pedestrian crosswalks.
• Completed the painting of over 2.4 million feet of lane and center line pavement markings
•Completed the painting of 70 areas of angle parking lines throughout the City
•Maintained and replaced/repaired 5,043 permanent street traffic signs
•Maintained and replaced/repaired 452 street name signs
•Provided traffic control and signage for 1,151 Special Events

Street Lighting
Street Lighting operates and maintains more than 76,000 street and alley lights and associated facilities to ensure Milwaukee's neighborhoods and roadways are safe and well-lit. In total, Street Lighting is responsible for nearly 1,300 miles of lighted streets in the City.

Accomplishments in 2009 include:
•Washington Blvd paving and Streetscape: Installed all new harp and hi-level poles with new harp fixtures and lanterns; along with new cabling for the entire project, North 48th to North 60th.
• .Greenfield Avenue: Chavez to North 27th Streetscape: New harp pole and fixtures along with the replacement of hi-level poles as needed and new lanterns; along with new bored conduits and cable.
•Holton Avenue / Reservoir to Center Streetscape: Installed new harp poles, harp fixtures, hi-level poles and lanterns; along with new bored conduits and cable.
•Wisconsin Avenue / North 2nd to Milwaukee River: Installed new downtown style poles and fixtures on the north-side of Wisconsin Ave. ES also installed two new, 200 amp outlet distribution cabinets with all associated cabling.
•Pabst City / Phase II: Installed new 2200 volt feeder from WB substation (North 6th & West Kilbourn) to new transclosures located at North 9th & Winnebago, plus new harp poles, conduit, cables and vaults.
•Repaired over 2400 primary street lighting system outages within 24 hours
•Repaired over 650 Underground single and double street lighting unit outages
•Assisted DPW / Parking with the installation of an additional 35 automated parking meters [Luke]. These units run off a battery during the day and are charged up at night from the street lighting circuitry. Each unit required excavation from a city light pole for the installation of the conduit and wiring for these charging circuits. The goals of Parking's extremely tight construction schedule were successfully met.

Environmental Engineering

The Environmental Engineering Section is financed through the Sewer Maintenance and Storm Water Management fees and is responsible for the programming, funding, design and installation of sanitary, storm and combined sewer facilities, as well as building sewers. The Section also handles the administration and implementation of the City's two Wisconsin Pollutant Discharge Elimination System permits. One permit covers the sanitary sewer system and the other permit covers the discharge of storm sewers into the area's rivers and Lake Michigan. In addition, the Section manages various infiltration and inflow reduction activities required to meet Milwaukee Metropolitan Sewerage District's Rules.

The Section, through its Underground Operations Unit, is responsible for the inspection, maintenance, and repair of the City's sewer mains, manholes, catch basins and storm inlets. The construction of the underground conduit system is also performed by Underground Operations.

Sewer Design Unit
The Sewer Design Unit prepared plans and special provisions for 125 sewer projects for 2009. We designed and let to contracts totaling 13.78 miles of replacement sewers and 15.74 miles of rehabilitation of existing sewers by trenchless methods. The total cost of all these projects was $39.6 million. Some of the major projects included the following:

East/West Keefe Avenue Combined Sewer Combined Sewer Replacement:

Approximately 5000 feet of an 1896 brick sewer in East/West Keefe Avenue from North 5th Street to North Humboldt Boulevard were replaced. The replacement of the existing sewers was necessary to address structural and hydraulic issues with the 113-year-old sewers, which ranged in from 30-inches to 72-inches in diameter. The total cost of this project was $5 million.

North Cambridge Avenue from East Newport Avenue to the Milwaukee River Sewer Lining Project:
Over 8700 feet of 38-inch by 50-inch, 120-year-old combined sewer constructed in 1890 were lined. The existing sewer was brick constructed, over time it has become porous, with missing pieces, and signs of inflow and infiltration were contributing to the deterioration of the sewer. The total cost of this project was $5.95 million.

North Cambridge Avenue Sewer Lining Project

Work shaft at the North Cambridge Avenue project

Sewer Lining Projects / Infiltration and Inflow Reduction in various areas of the City.
The City lined more than 50,000 feet of sanitary sewers in various parts of the City in 2009. This was an effort to reduce infiltration and inflow from the sanitary sewers, thus reducing the possibility of sewer backups into basements and sanitary sewer overflows into adjacent rivers and streams. This lining work was completed at a cost of $6 million, with funding from the American Recovery and Reinvestment Act (ARRA).

Storm Water Management Unit
Municipal Storm Water Total Suspended Solids (TSS) Reduction

As required by the Wisconsin Department of Natural Resources (WDNR), the City is required to implement Best Management Practices to reduce total suspended solids in runoff that enters waters of the state. To this end, a contract was awarded at a cost of $472,000, to construct twenty bioretention facilities to replace the conventional medians in North 91st / 92nd Streets between West Capitol Drive and West Good Hope Road. Bioretention uses certain native plants and flowers planted in engineered soils to trap pollutants that exist in storm water runoff before the runoff makes it to area streams and rivers.

Illegal/Illicit (I/I) Discharge Testing:
Dry weather testing consists of visual and chemical tests for pollution at each outfall. The Section performed a total of 944 dry weather tests during 2009, including the testing of 346 outfalls. The dry weather testing identified 72 locations in five areas as being potential sources of pollution. Private property inspections, smoke testing of the sanitary sewers and dye testing were performed at these locations to narrow down the individual properties, resulting in referrals to the Department of Neighborhood Services for further action. All of the properties identified have either been corrected or are in the process of being corrected.

Sanitary Sewer Flow Monitoring:
A total of 22 sanitary sewer systems were monitored in 2009. Flow monitoring data are analyzed to determine the quantity of infiltration and inflow in a system, flow restrictions, MIS surcharges, and other problems that may lead to backwater complaints and/or overflows.

Sanitary Sewer System Inspection:
In 2009, the unit awarded an inspection contract in the amount of $106,000 to inspect 4,627 sanitary manholes. This work provides a more accurate assessment of existing sanitary manholes and helps to identify defects that may cause infiltration and inflow (I/I) and other structural defects. A contract was awarded for the repair of 2,919 sanitary sewer manholes at a cost of $2,201,000. The rehabilitation consists of replacing lids, installing chimney seals and repairing defective brick work in the manholes. This work reduces the amount of I/I entering sanitary manholes.

Sanitary Bypass Station Rehabilitation:
In 2009, the unit awarded two sanitary bypass station rehabilitation contracts in the amount of $422,000. The scope of work on these projects involved the replacement and installation of submersible pumps, discharge piping, valves, level transmitters, and construction of new bypass pump manholes and control cabinets. This contract work included significant upgrades to the City's West County Line Road sanitary lift station.

Automated Mapping and Drafting Unit
The automated Mapping and Drafting Unit drafted a total of 311 sewer construction plans in 2009. These plans are used in the installation, replacement, or rehabilitation of sanitary, storm, and combined sewers at various locations throughout the City.

In 2009, the Unit continued its efforts to convert sewer maps and other records from paper files and/or microfilm to digital documents, which enable staff to access information from their workstations, as well as update and edit the documents with greater speed. We also continued to move forward on digitizing of sewer laterals and other geographic features onto our maps.

Other responsibilities of the Unit include:

- Provide the public and other City departments with maps and information regarding City sewers.
- Assist citizens and plumbing contractors with sewer and sewer lateral questions
- Prepare sewer construction sketches for public hearings
- Draw sewer easement plans for construction projects and street vacations
- Process utility, plumbing, and building permits

Underground Operations Unit
The Underground Operations Unit is responsible for cleaning, inspecting, and repairing the City's various sewer systems and structures (manholes, catch basins and storm inlets). This includes responding to and investigating complaints of backwater and street ponding throughout the City. Also, Underground Operations inspects and repairs communication manholes and conduits. The conduit work, along with much of the inspections and repairs of the sewer structures, occur on streets scheduled to be repaved.

During the heavy rainstorms from June 19 to June 26, 2009, Underground Operations responded to over 690 backwater complaints (basement flooding) and over 180 street surface flooding calls. Employees worked around the clock responding to these service calls, including several outside of our jurisdiction. For 2009, we responded to 6,675 service calls, which included backwaters, clogged catch basins, clogged storm inlets, and other sewer related complaints.

During 2009, 147.2 miles of sewer were examined; 474 miles of sanitary sewers and 115 miles of combined sewers were cleaned. Additionally, 12,355 catch basins and 32,071 stormwater inlets were cleaned. Cleaning the catch basins and stormwater inlets maintains proper surface water drainage during storm events and reduces the amount of storm water ponding on streets.

In 2009 the Underground Operations Unit joined forces with Department of Public Works' Forestry section to alter and abandon sewer structures to assist in the City's boulevard beautification program. The unit also worked along with the Department of Public Works' Street Maintenance section raising numerous sewer and communication manholes to accommodate asphalt resurfacing projects.

Major underground conduit installation and communication manhole projects performed by Underground Operations were:

- 14, 298 feet of conduit in S. 27th St. W. Layton – W. Bolivar
- 14, 940 feet of conduit in S. Howell Ave. E. Howard – Union Pacific Railroad N. of E. Holt Ave.
- 11, 286 feet of conduit in W. College Ave. S.13th St – S. 20th St.
- 4000 feet of conduit in S. 1st St. E/W. Pittsburgh – E/W. Seeboth St.
- 2,042 feet of conduit in W. Grange Ave. S. 13th St. – S. 20th St.
- 544 feet of conduit in W. Good Hope Rd. at N. 91st St.
- 542 feet of conduit in S. 43rd St. W. Oklahoma Ave. – W. Forest Home Ave
- 390 feet of conduit in W. Wisconsin Ave. at N. Plankinton Ave.

Underground Operations is also responsible for the disposal of the debris removed during the cleaning of the sewers, catch basins, and storm inlets. This work is currently being performed under a 2009 contract with Veolia Water Milwaukee, LLC for disposal of the wet material collected in the cleaning process.

Drainage Channel Maintenance
In 2009, Underground Operations was involved in the cleaning and reconstruction of various City of Milwaukee maintained waterways throughout the city removing debris and vegetation at outfalls and in channels that may impede water flow

MILWAUKEE WATER WORKS

Carrie M. Lewis, M.Sc.,
Superintendent

Who We Are

The Milwaukee Water Works (MWW) treats Lake Michigan water to provide pure, healthful and good-tasting drinking water to 868,000 people in 16 communities -- Milwaukee, Brown Deer, Butler, Franklin, Greendale, Greenfield, Hales Corners, Menomonee Falls, Mequon, New Berlin, Shorewood, St. Francis, Thiensville, Wauwatosa, West Allis and West Milwaukee.

The self-financing utility, owned by the City of Milwaukee since the water works was founded in 1871, is regulated by the U.S. Environmental Protection Agency (EPA), the Wisconsin Department of Natural Resources (DNR) and the Public Service Commission of Wisconsin (PSC). The water works pays other city departments for services it uses and pays its employees' benefits.

Zeidler Municipal Building
841 North Broadway,
Room 409

Laura Daniels,
Administration and Projects Manager

Earl Smith,
Business Manager

Dan Welk,
Plants Manager – North

John Gavre,
Plants Manager – South

Dave Goldapp,
Distribution Manager

Dinah Gant,
Engineering Manager

Lon Couillard,
Water Quality Manager

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Average daily pumpage in 2009 was 109 million gallons. Total annual water sales for 2009 were 33 billion gallons. Residential water use for 2009 was 47 gallons per person per day. The cost of water per household is about $200 per year; the EPA estimates the national average is $500 per year.

Since 1998, the Milwaukee Water Works has invested $227 million in its infrastructure, from treatment plants to distribution systems, to ensure high quality drinking water and reliable supply. A reliable water utility delivers good-tasting and healthful drinking water to maintain public health, sufficient supply and pressure to fight fires, and a supply to meet the needs of business and industry.

From treatment to delivery and customer service

- Two Water Treatment Plants provide 24-hour-a-day drinking water service. The Milwaukee Water Works treats Lake Michigan water with a multiple-step process to protect public health. Ozone gas, one of the most powerful disinfectants available, destroys microorganisms, reduces chlorinated disinfection byproducts, and removes taste and odor. Coagulation, settling, and biologically active filtration remove additional particles. The entire process and distribution facilities are monitored with real-time information through a Supervisory Control and Data Acquisition (SCADA) System.

•Water Quality staff ensures water quality meets, and in many cases, exceeds regulations.

- Distribution activities focus on scheduled preventive maintenance and scheduled and emergency repair of 19,811 hydrants and 1,964 miles of underground water mains throughout Milwaukee and the utility's retail customer suburbs.

•Water Engineering provides an internal resource, responsive to applied research needs and coordinates the Capital Improvements Program.

- The Business Section includes accounting, customer service, billing and collections, marketing and public education. Meter Services ensures that water meters operate properly and accurate represent water use. Technical Services provides informational technology support.
- On behalf of the City of Milwaukee, the utility manages billing for the Milwaukee Municipal Services Bill, which includes charges for drinking water, Milwaukee Metropolitan Sewerage District (MMSD) sewer treatment and service, city sewer maintenance, storm water management, solid waste collection and snow and ice removal. In 2009, the Milwaukee Water Works Customer Service Center responded to 181,040 incoming telephone inquiries and served 32,327 customers who visited the center in the Zeidler Municipal Building.

Water Quality

Milwaukee received national recognition in 2009 for its environmental monitoring program for pharmaceuticals and endocrine disruptor compounds. In addition, the Milwaukee Water Works is recognized for producing high quality water and for its program of monitoring water quality from start of treatment to delivery. The Milwaukee Water Works tests source and treated drinking water for over 500 contaminants, hundreds more than the EPA requirement to test for 90 contaminants. The additional monitoring is done to ensure healthful water, to collect baseline data for study, to help increase the understanding of how contaminants may affect public health, and to meet future regulations. Find complete water quality information at http://city.milwaukee.gov/water/about/WaterQuality.htm

Emergency Preparedness

In 2009, the Milwaukee Water Works joined WisWARN, a voluntary mutual aid response network for Wisconsin water and wastewater agencies. This provides a mechanism for the Milwaukee Water Works to request or provide emergency assistance (personnel, equipment, materials and associated services) in the event of a major disaster.

The Milwaukee Water Works Emergency Response Plan provided important guidance for a coordinated recovery and communication when, on Jan. 19, 2009, a We Energies electrical power outage halted the operation of the Linnwood Water Treatment Plant and the nearby Riverside Pumping Station. Through the diligent efforts of Milwaukee Water Works employees, water service

continued uninterrupted during the 1-1/2-hour power outage and the four hours the plant and pumping station were not operating. Both facilities were returned to service without incident. Milwaukee water remained safe to drink and at reliable pressures throughout the event.

The MWW maintains and tests its Continuity of Operations Plan (COOP) to ensure the utility has sufficient resources to continue essential operations should critical infrastructure be affected by an adverse event such as fire, terrorist incident, severe storm, or power interruption. The plan identifies activities and teams of individuals who will be activated during a catastrophic event.
A long range project to provide backup power generators for five critical water infrastructure sites advanced in 2009 with the initiation of a backup power generation system at the Riverside Pumping Station.

Increased Water Customer Base
Milwaukee water began flowing to the middle portion of the City of New Berlin in July 2009. Residents and businesses benefit from the improved water quality because Lake Michigan water contains no radium. Also, the groundwater was about three times as hard as Lake Michigan water, so water softeners are no longer needed in areas receiving Milwaukee water. The use of Lake Michigan water relieves the pressure to draw more water from the local aquifer. New Berlin had frequently imposed water restrictions during the summer months because of the demand for water. This was the first DNR approval of a diversion of Lake Michigan water for a straddling community outside the Great Lakes Basin since the ratification of the Great Lakes Compact in 2008. The diversion is fully compliant with the requirements of the Compact.

Preventing Water Waste
As a steward of the Lake Michigan resource, the Milwaukee Water Works uses sustainable practices such as supply side conservation, water accountability, energy conservation, operational efficiency and consumer advocacy for repairing leaks and preventing water waste. Additional information is available at www.milwaukee.gov/water.

MWW began a review of non-firefighting use of hydrants from the point of view of water accountability and public safety. Metering of permitted hydrants will be increased. Cross-connection prevention will continue to be aggressively enforced. Non-fire suppression uses of hydrants will be removed in future years as alternatives become available.

During 2009, the MWW, through its proactive Vacant Property Turn-Off Program, disconnected water from 1,891 vacant properties in the City of Milwaukee, preventing frozen pipe damage and wasted water.

A public education campaign, in its fifth year in 2009, has eliminated the waste of millions of gallons of treated water by reducing illegal hydrant openings during hot weather. Treating that amount of water only to have it drain, wasted, into sewers is expensive for all stakeholders and a loss of a precious resource. Water wasted due to illegally opened hydrants decreased from an estimated 447 million gallons in 2006 (745 hydrant openings) to 63 million gallons in 2009 (105 hydrant openings).
The Department of Public Works (DPW) adopted a best practices technique to reduce water waste. DPW no longer uses hydrants to flood water and sewer main projects to settle the soil around underground trenches, but requires contractors to use mechanical compaction to complete backfill of trenches. The change saves an estimated 20 million gallons of water per year (which would otherwise have drained into the watershed) and saves wear and tear on hydrants.

Water is Milwaukee's competitive advantage
While contributing to a high quality of life, the Milwaukee Water Works offers business and research an abundant supply of high quality water at a low price and great value. MillerCoors invested more than $26 million in its West State Street brewery in 2009 and began producing Coors Light in Milwaukee. Officials said they increased employment because of the availability of water.

Regional Cooperation
In the spirit of regional cooperation, the Milwaukee Water Works provided emergency water to the Cudahy Water Utility for 24 hours to help fight the devastating fire at the Patrick Cudahy plant July 4- 6. Milwaukee provided 8.2 million gallons of water through a 12" emergency water connection at a shared municipal border for the firefighting effort.

Caring for Community
Employees of the Milwaukee Water Works give back to the community they serve. In 2009, 35% of utility employees pledged $23,500 to the city's Combined Giving Campaign; they supported the UPAF/Visions campaign with contributions of $7,625.

INFORMATION ABOUT MILWAUKEE

Altitude (City datum) ..... 581.2 feet
City Area ..... 96.1 square miles
Geographic Center ..... N. 42nd Street and W. North Avenue
Shoreline of Lake Michigan in City ..... 10.2 miles
Incorporated by Wisconsin Charter ..... January 31, 1846

FACILITIES

Number of Buildings 233
Number of Monuments 18
Number of recreational facilities 95
Square footage of Buildings 4,028,238
Square footage of roofs ..... 1,008,008 (22.4 football fields)
Systems
Air handling units 256
Pumps 195
Exhaust fans 198
Electrical Switch gear 200
Electrical Transformers 400
Communications
Phones in service 4080
Miles of fiber optic cable 250
Miles of copper cable 650

Demand maintenance (requests) 16,702
Preventative maintenance (scheduled) 2,281
Board-ups ..... 2,397 (2,150 MPD, 247 DNS)

FORESTRY

Trees on city streets 193,000
Trees planted 4,985
Trees removed (all causes) 3,455
Trees pruned 34,240
Boulevard medians and green spaces maintained ..... 476 acres
Stumps removed 3,214
Flowers (annuals/perennials) produced) 305,957
Signature beds installed (2008-09) 188
Landscaped boulevard medians ..... 121.8 miles
Green spaces maintained 59
Tot lots maintained 57
City properties maintained 20
Service Requests 17,356

FLEET SERVICES

Repair Orders 23,160
Preventive Maintenance Inspections Performed 7,571
Tires Mounted 3,208
Field Service Calls, Tires 3,401
Field Service Calls, Other 9,305
Stockroom Activity $5,055,164

Vehicles Serviced
Passenger Vehicles 1,001
Packers, Rear Load 130
Packers, Front Load and Roll-off 12
Packers, Recycling 48
Tractors 58
Street Sweepers 20
Sewer cleaners, flushers, etc 19
Construction equipment 474
Trucks, all other 779
Compressors 77
Vehicle Total 2,618
Non-Automotive equipment 1, 606
Total Serviced 4,224

MILWAUKEE WATER WORKS

Howard Ave.Treatment Plant rated capacity .....
..... 105 million gallons per day (MGD)
Linnwood Treatment Plant rated capacity ..... 275 MGD
Average Daily Pumpage ..... 109 million gallons (MG)
Total Annual Water Sales ..... 33 billion gallons (BG)
Water mains, total length ..... 1,955 miles
Water meters in service 162,011
Hydrants 19,811
Population served ..... 867,599 in Milwaukee and 15 communities
Area served ..... 196 sq. mi.
Residential water use ..... 47 gallons per person per day
Cost of drinking water 5.8 gallons cost one cent, or 100 cubic feet (748 gallons) cost $1.34

Retail customers - 5 Greenfield, Hales Corners, St. Francis, Franklin (a portion); West Milwaukee receives billing services from MWW and maintains its own distribution system.

Wholesale customers - 10 (Brown Deer, Butler, Greendale, Menomonee Falls, Mequon, New Berlin, Shorewood, Thiensville, Wauwatosa, West Allis. The MWW also provides water wholesale to the Milwaukee County Grounds.

REFUSE AND RECYCLING COLLECTION

Total recyclables (residential tons) 25,220
Household/curbside materials 22,174
Other residential materials 3,046
Leaves and Yard trimmings composted (tons) 36, 113
Total residential tons diverted from landfill 61,333
Garbage to landfills (total tons) 268,367
Residential garbage 205.075
Other garbage 63,292
Residential landfill diversion rate 23%
Snowfall (January to December) ..... 49.8 inches
General snow plowings 3
Ice control operations 37
Salt usage (tons) 46,099
Service Requests 91,244
Self-Help users 336,650

SEWERAGE

Metropolitan population served (2000 estimate) 1,062,356
Total sewer mileage in operation (sanitary, storm, and combined) 2,446
Average gallons treated daily 221,000,000
Gallons per year 80,516,000,000
Gallons per day per person 208
Source: Milwaukee Metropolitan Sewerage District
Maintenance
Sewers examined ..... 94.05 miles
Sewers cleaned ..... 62.89 miles
Replacement sewers ..... 13.78 miles
Sewer lining ..... 15.74 miles
Service calls answered ..... 16,627 calls

STREET AND BRIDGE MAINTENANCE

Freeways ..... 40.13 miles
Paved city streets ..... 1,417 miles
Unpaved streets ..... 16.58 miles
Total city streets ..... 1,432 miles
Alleys ..... 415 miles
Miles of lighted streets ..... 1,291.59 miles
Number of lighting units 76.593
City-maintained bridges 220
Movable bridges 20
Total bridge openings 12,415
Streets with interim lighting 81.96
Unlit streets 43.45
Street lighting units 67,798
Alley lighting unit 8795
Traffic control signs 105,539
Bus stop signage maintained 4.241
Bridges, inspected 75
Bridges, number of openings 15,754
Pavement seal coating (sq. yards) 234,236
Asphalt surface by contract (tons) 4,316
Asphalt patching (tons) 13,800
Crack filling (sq. yards) 815,840

CITY OF MILWAUKEE
1846
DEPT. OF PUBLIC WORKS