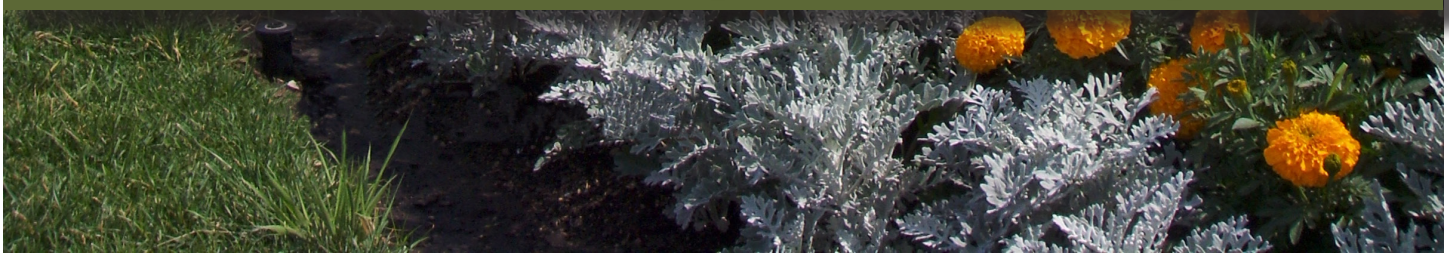
CITY OF MILWAUKEE
DEPT. OF PUBLIC WORKS
1846

2010 ANNUAL REPORT



2010 Milwaukee Common Council

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Willie L. Hines, Jr.
District 15

Ashanti Hamilton
District 1

Joe Davis, Sr.
District 2

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District 4

James A. Bohl, Jr.
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District 11

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District 12

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District 13

Tony Zielinski
District 14

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 2010

- Continue to develop Hartung Park by constructing a 2.2 acre detention pond immediately south of the newly constructed playfield and play ground. The pond provides an aesthetic water feature to satisfy the overall plan for Hartung Park. In addition, it helps the City of Milwaukee to reduce and filter the storm water before it enters the natural water ways.

- Create the historic American Legion star emblem on the east hill of Kilbourn Reservoir Park. The hill once covered a water reservoir on North Avenue. The emblem – dating back to the 1930s – originally was made of floral plants. A landscape artist came up with a way to use colored, tumbled recycled glass pieces to make the old emblem "new."

- Continue to expand the City's "Green Fleet" by purchasing two compressed natural gas (CNG) refuse trucks. These trucks are much cleaner and quieter than standard diesel trucks, and cost substantially less to fuel.

- Complete "Sustainable Boulevards" a planned three year conversion of Milwaukee's 120 miles of landscaped boulevards to more sustainable design and maintenance standards.

MESSAGE FROM THE COMMISSIONER
YEAR IN REVIEW

Jeffery J. Mantes

While 2010 had many accomplishments from the Department of Public Works, our true strength was shown in July, when we had to overcome one of the worst floods in Milwaukee's history. Each division had their own struggles to vanquish and it is in these trials and tribulations where our employees really show their dedication to the citizens of Milwaukee. The first action was a preemptive move on July 21st, in which 20 by-pass pumps were obtained to help lessen the effect of the storm predicted for the next day. The storm inevitably brought 7.2 inches of rain within just the first two hours.

The Administrative Services Division was busy keeping the media and public informed of efforts made by DPW by sending out two dozen media advisories within the first two days of the flood. Not only were media advisories used to keep the public informed, but also the City Call Center (286-CITY) had to work diligently so that citizens of Milwaukee could call and report, backwater in their basements, and request debris pick ups of items from their basements resulting from the flood. The Call Center handled 85,000 calls from July 15th to August 15th. Another obstacle set forth in our path was trying to obtain emergency relief from FEMA. This was the main concern for citizens who have had their basements damaged from the flooding. The Administrative Services Division kept the media informed of the efforts being made between the City of Milwaukee and FEMA. These attempts by City officials resulted in FEMA providing monetary relief to the citizens of Milwaukee.

The Operations Division definitely had their hands full with the July flood. Five days after the initial rainfall about 1,300 tons of debris was collected and 33 crews had to work 10 hour days until all the backwater calls were investigated. Flood debris collected rose to 5,500 tons by the beginning of August. Also, due to the amount of debris, collection needed to be extended to August 13th, nearly a month after flooding began.

The sinkhole created at the highly traveled intersection of Oakland Avenue and North Avenue on Milwaukee's east side was one of the biggest news events from the flood this story was carried nationwide. Infrastructure Services had to not only stabilize the sinkhole, which was 60 feet in diameter and 50 feet deep, but also remove a large SUV that had fallen into it. Swift efforts to fix the sinkhole resulted in all the sewer work being completed by September 13th.

Other major highlights and accomplishments aside from the July flood include the construction of a unique gathering place, the Erie Street Plaza, at the confluence of the Milwaukee River, Kinnickinnic River, and the Milwaukee harbor. This space offers a relaxing experience for visitors along the waters edge.

A DPW Support for Business Program was launched to help minimize the impact of the 2010 stimulus funded construction projects on abutting businesses throughout the City of Milwaukee. This program will be extended in 2011 to include education and technical assistance opportunities to all willing impacted businesses through the office of the University of Wisconsin-Milwaukee's Small Business Development Center.

Milwaukee is continuing to grow as a "Green City", and has been recognized on a national level as having one of the 40 Top Green Fleets in North America. The City Fleet now includes 38 hybrid cars and trucks, including two hybrid aerial lift trucks. These trucks are much cleaner and quieter and most importantly cost substantially less to fuel.

"Use Water Wisely" is a program in which the Milwaukee Water Works helps customers find and repair water leaks to reduce water waste and loss and conserve our water resources. About 8,000 customers with unusually high water bills were given informational materials on how to find and fix leaks. Of the customers who returned a feedback postcard, 66 percent said they found and fixed leaks.

In 2010 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 also extremely proud of the work that the Department of Public Works staff has accomplished in 2010 regarding the major flooding in July. Although the projects mentioned are only a small sampling of staff efforts there are many untold stories of successful programs and achievements. Thanks to the staff for your continued hard work and dedication to the citizens of Milwaukee.

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

DPW ORGANIZATION

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

ADMINISTRATIVE SERVICES

Administrative Services Director.....**Shirley Krug**
Finance and Planning Manager.....**Patrick Hartmann**
Parking Enforcement Manager.....**Thomas Sanders**
Parking Financial Manager.....**Cindy Angelos**
Coordination Manager.....**Ghassan Korban**
Personnel Administrator.....**Dan Thomas**
Permits and Communications Manager.....**Cecilia Gilbert**

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**

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**
Facilities Director.....**Venu J. Gupta**

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.

DPW BUDGET SUMMARY

	2008 ACTUAL EXPENDITURES	2009 ADOPTED BUDGET	2010 ADOPTED BUDGET	CHANGE 2010 ADOPTED VS. 2009 ADOPTED
PERSONNEL*				
FTEs - Operations & Maintenance	0	1,041.0	976.2	-64.85
FTEs - Other	0	417.8	404.7	-13.04
Total Positions Authorized	-	2,393	2,337	-56
EXPENDITURES - General City Purposes				
Administrative Services	$5,059,766	$4,890,430	$4,634,569	-$255,861
Infrastructure	27,930,801	26,390,916	33,656,488	7,265,572
Operations	96,866,680	82,399,692	70,533,610	-11,866,082
SUBTOTAL - General City Purposes	**$129,857,247**	**$113,681,038**	**$108,824,667**	**-$4,856,371**
WATER WORKS				
Operating Budget	$66,165,760	$71,008,475	$82,802,804	$11,794,329
Capital Budget	18,124,405	27,096,000	20,030,000	-7,066,000
TOTAL WATER WORKS**	**$84,290,165**	**$98,104,475**	**$102,832,804**	**$4,728,329**
PARKING BUDGET				
Operating And Maintenance Budget	$26,752,228	$26,552,163	$28,405,216	$1,853,053
Capital Budget	1,385,192	2,936,000	950,000	-1,986,000
Addition to Parking Reserves	0	0	0	0
Transfer to General Fund	1,700,000	18,132,150	22,287,000	4,154,850
Capital Improvements to be Financed				0
from Permanent Improvement				0
Reserve Fund - Parking	0	5,000,000	5,000,000	0
TOTAL PARKING BUDGET	**$29,837,420**	**$52,620,313**	**$56,642,216**	**$4,021,903**
SEWER MAINTENANCE FUND	$35,634,818	$44,898,343	$49,873,755	$4,975,412
Operating and Maintenance Budget	26,939,928	31,450,000	23,937,000	-7,513,000
Capital Improvements	**$62,574,746**	**$76,348,343**	**$73,810,755**	**-$2,537,588**
TOTAL SEWER FUND BUDGET				
GRAND TOTAL - DEPARTMENT OF PUBLIC WORKS	**$306,559,578**	**$340,754,169**	**$342,110,442**	**$1,356,273**

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

July 2010 Flood - Milwaukee Wisconsin

July 21st

DPW obtains 20 By-Pass pumps

Storms predicted to reach southeastern Wisconsin by July 22nd

July 22nd

7.2 inches of rain hits southeastern Wisconsin within 2 hours

July 23rd

DPW received 3,101 calls to report backwater in basements and 183 calls regarding surface ponding

DPW responds to sewer collapse at N. Oakland Ave. and E. North Ave.

July 26th

Sanitation staff collects 580 tons of flood debris in two days

Sinkhole has been stabilized

Parking Citations issued between 4:00 p.m. on July 22nd to 6:00 a.m. on July 23rd will be voided due to flooding

July 27th

1,300 tons of debris collected. 33 crews will work 10 hour days until all backwaters are investigated

July 28th

Call Center reports 8,800 calls since July 22nd regarding backwater in basements

Number of Sewer Field Investigator Crews has doubled to 66.

July 29th

3,333 tons of debris have been collected

July 30th

Approximately 10,000 backwaters have been reported since July 22nd

August 3rd

12,357 cleaning kits have been distributed

5,272 tons of debris have been collected

August 10th

Flood debris collection extended until August 13th

September 13th

All sewer work in regards to the sinkhole on N. Oakland Ave and E. North Ave has been completed. Water main replacement is ongoing

Administrative Services

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Administrative Services Director

Thomas Sanders
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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.

Finance And Planning

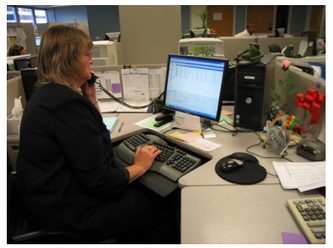
In 2010, the department's operating budget (excluding enterprise funds) totaled $108.8 million. At year's end, expenditures for materials, services and equipment totaled $1.0 million or 2.7% more than the $37.0 million budgeted due to the increased cost of construction materials and property services. Expenditures for employee salaries exceeded budgeted amounts by $6.0 million or 12.0%. Approximately $4.9 million of this overage was due to wage increases resulting from contract agreements with unions and trade groups, including the American Federation of State, County and Municipal Employees (AFSCME) District Council 48. These costs are funded by the city's Wages Supplement Fund, a fund maintained by the city for the purpose of funding increased salary expenditures due to contract settlements.

The balance of the salary budget overage is due largely to the unfunded portion of the department's response to the storm event of July 22, 2010. During this event, the city experienced 7.5 inches of rain within a two hour period resulting in severe flooding of city roads, buildings and houses. The U.S. Department of Homeland Security declared this event a federal emergency and has provided grant funding totaling $1.5 million to offset the cost of the department's response. However, this funding included payment for only overtime salaries, not regular-time salaries associated with emergency response measures that included activities such as securing and pumping flooded streets, investigating household flooding, or street and household debris removal.

DPW Call Center

The Department of Public Works Call Center is a "one stop shop" for citizens requesting services or seeking information either by telephone or online at www.city.milwaukee.gov\mpw. Citizens dialing 414-286-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 2010 the Call Center received 308,150 calls, a 27% increase from the previous year. Of the total calls received 36,611 were transferred to internal departments; 29,504 misdirected calls were transferred to other agencies; and 65% of the remaining 129,834 service requests received were 65% sanitation related. Staff handled 14,258 online requests.



Over 85,000 calls were handled by the DPW Call Center due to the two July flooding events, which generated 25,106 requests for Sanitation of which 11,571 were for flood debris removal; 12,303 were for backwater in basements, and 673 were for clogged catch basins.

The Call Center staff worked beyond the end of the work day for days after the big flood on July 22nd. Additional staff from various departments within City government were recruited to work on weekends and the following week to provide the extra help that was needed to answer the huge volume of calls.

Personnel and Safety

In 2010, the Personnel and Safety sections continued work on various initiatives. Training in safe lifting, confined space and other worksite safety issues has kept employees abreast of the most current industry practices. The use of the Transitional Duty Program has resulted in a continuing downward trend in lost time and a reduction in injury pay expenditures.

Also in 2010, planning was completed to create 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 has been established and classes will begin in 2011.

Special Events

The Department of Public Works' Special Events Office issues hundreds of permits each year. Some events help promote neighborhoods, like Summer Sizzle for the Historic Third Ward, Summer Soulstice Music Festival, East North Avenue BID; and the Bay View Bash. Others provide an educational forum for residents; sponsor back-to-school block parties that provide school age children with school supplies and many more are used to raise awareness for diseases and raise money for various cures. Then there are music festivals and cultural events that help to enrich the vibrancy of the city. One such event is Jazz in the Park, a music series that runs for 18 Thursdays, starting in June and ending in September. This event celebrated its 20th

anniversary this past summer.

Additional permits were granted for bus parking for tourism related events, bicycle races, run/walks, photo shoots, filming, bus parking for school outings and in conjunction with special events held in Milwaukee County Parks.

In 2010 the Special Event office issued 1,156 permits, 52 more than last year. This increase led to a substantial amount of additional revenue which was $57,236. Total amount collected was $362,164.

Large special events require the assistance of the Milwaukee Police Department, Milwaukee County Transit, Public Works Traffic Engineering staff and in some instances Milwaukee County Parks staff and the Milwaukee County Sheriff's Department. All of these entities are needed to make sure the events are conducted in a safe manner and provide the least amount of impact to residents and businesses.

Parking

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

In addition to the four public 24-hour cashierless parking structures the City operates, DPW-Parking also oversees a long-term lease of a fifth garage and 46 surface lots primarily controlled by permits or meters. In 2010, total revenue earned from all structures and lots exceeded $ 7.4 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 2010, more than $5 million was generated from all sources of meter revenue.

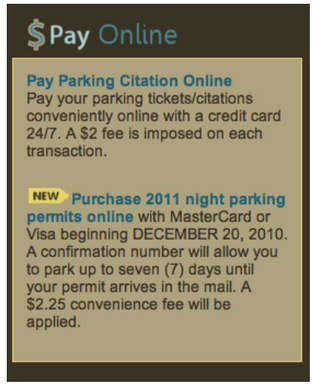
In 2010, DPW continued to expand the installation of multi-space meters. Twenty-four multi-space meters replaced 202 single-space meters surrounding the University of Wisconsin-Milwaukee (UWM) campus. This was the first multi-space meter installation outside the Downtown / Historic Third Ward limits. In the first two months since installation, credit card revenues at UWM exceeded 46% of total revenues. We anticipate this percentage will increase over time and more closely approximate the 60% credit card revenues generated in the central business district.

DPW-Parking administers the overnight parking permit program. To make permit purchases more convenient, permits are now sold annually and on a 4-month basis, thus reducing the need for one permit purchase per year. The permits are sold at three Violations Bureau payment centers, the Tow Lot, and seven district police stations. Six police stations have nine electronic payment center kiosks, of which five were replaced in January. In addition, night permits were available for purchase on-line for the first time.

DPW administers four contracts for towing vehicles and one for recycling vehicles. Of the 28,295 vehicles towed in 2010, approximately 85% were returned to owners, 10% were recycled, and 5 % were sold at junk-bid auctions. Revenues generated from all towing activities totaled about $5,266,101 million.

Parking Enforcement operates 24 hours per day, 7 days per week, and 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, responds to aldermanic service requests, and investigates complaints of abandoned vehicles via scheduled and special deployment.

The new internet method is administered by DPW's citation processing contractor. Permits purchased on-line are recorded in real time, allowing citizens to buy a permit up until 1:00 AM on the morning for which they require the permit, thus avoiding some night parking citations. In its first year, over 17,000 night permits were purchased on-line, representing 11% of total permits sold. Non-police department personnel permit sales exceeded 92% of the 146,000+ night permits sold.



In 2010, over $3.5 million from quarterly and annual night permit sales were realized.

Due to greater public compliance with regulations, issuance has decreased since the peak year in 2004. DPW parking citation issuance was 839,990, about a 1% increase compared to 2009. Parking citations generated revenues totaling over $23 million.

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.

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 applications including e-mail, new applications for 286-CITY and parking enforcement, work management systems, public works permits, Microstation, and PeopleSoft.

In 2010, all DPW IT support staff (excluding the Milwaukee Water Works) were consolidated under TSS. This included the relocation of three staff and minor office remodeling. Microsoft Office was upgraded throughout DPW to Office 2007. Also in 2010, backup Microsoft domain servers and rotated backup tapes were installed at a second location, as well as the rotation of backup tapes to this site, for disaster recovery.

The application development team works directly with DPW operational managers to custom-build functionality into applications to maximize the efficiency and effectiveness of DPW operations.

In 2010, a Police overtime module was added to CityTime, eliminating the need for paper processing. Several additions were made to the call center application including tracking of smoking complaints to comply with state law, the addition of leaf and plow routes, and emergency additions to track extra data about flood details required by FEMA, as well as integration of all backwater and flood requests from other department systems. The voicemail system was upgraded with new hardware and software, as well as increasing system capacity. TSS also completed a major program to integrate data from Major Streets, Bridges, Design, Drafting, Traffic, and other sections into one system.

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.

Besides "data" communication services, DPW also supports telecommunication services for municipal security systems, the City and Police Department telephone inter-office links, radio backbone, and low-speed data communications.

In 2010, TSS worked with several departments including Municipal Court, Health, Milwaukee Water Works, and ITMD to implement or upgrade SANs (Storage Area Networks). Following the June flooding, TSS supported the increased call volume and call-takers for the call center, as well as established phone and network services for FEMA's emergency response center. Assistance was provided to the police department to provide network services to many projects, including an upgrade of the 911 center, a new "fusion" center, video camera systems, a new "ShotSpotter" initiative, and emergency operations center. Within DPW, TSS supported projects to modernize the elevators, install a wireless connection to the fuel truck, and restructure the security systems data network. Also, upgrades to several firewalls and servers were completed.

Special Projects

The Department of Public Works Administrative Services Division coordinated planning and construction of public improvements for several major projects during 2010.

Emmber Lane River Improvement and Access Project was completed, consisting of construction of all piles and trash barrier walls. The barrier walls were erected to prevent floating trash from collecting in the corner where the Menomonee River and Emmber Lane meet. The project also included a riverwalk, dock installation, boat launch pad and landscaping which provided a much-needed access point for non-motorized boat launching.

The Menomonee Valley Partners, the Milwaukee Riverkeepers and area businesses provided much assistance throughout the planning and construction of the project.

The project was partially funded (40%) through a Coastal Management Grant received from the State of Wisconsin in 2007. The other source of funding was provided by the Sewer Maintenance Fund.

Following phase I of the **Hartung Park** development which was completed in 2009, phase II was completed in 2010. The project consisted of constructing a 2.2 acre detention pond immediately south of the newly constructed playfield and play ground. The pond provided an aesthetic water feature to satisfy the overall plan for Hartung Park and in

addition to help the City of Milwaukee in reducing its total suspended solids from entering the natural water ways.

As the city continues to utilize the remaining 10 acres of the park as a place for City forces to dispose of all excavated materials generated on a daily basis, plans have started to transform this section into a sledding hill by end of 2011.

The Department of Public Works and Marquette University

(Before)

(Before)

(After)

joined efforts and funding to construct a median on West Wells Street between North 13th and 16th streets. The main purpose for the median is to increase pedestrian safety when crossing Wells Street as well as to add an aesthetic feature along that segment of Wells street.

In addition to the routine upkeep of the Riverwalk, DPW worked closely with the Riverwalk Business Improvement District No. 15 (BID #15) and the Department of City Development to manage the construction on the Americans with Disabilities project. Upon completion, the project will satisfy the Americans with Disabilities Act settlement with the Department of Justice of the State of Wisconsin.
The settlement required the City of Milwaukee and owners of the Riverwalk within BID #15 to construct ramps or lifts to provide wheelchair access to the Riverwalk.

In addition to the segments which were completed in 2009, Mason Street Plaza and Usinger's Riverwalk near the State Street Bridge, the Highland Street Ramp (AKA as the Edelweiss Ramp) was completed in 2010.

DPW also administers the **River Skimmer Operation.** In year 2010 the skimmer operation program was significantly expanded. The days of operations was increased from three to five days a week and operation was expanded from just patrolling the Milwaukee River to also patrolling the Menomonee and Kinnickinnic Rivers.

The skimmer played a significant role in cleaning up all three rivers in the aftermath of the floods that struck the Midwest in June. The skimmer has removed in excess of 100 tons of debris in 2010.

In 2010 the new **Erie Street Plaza** was constructed. A unique gathering place located at confluence of the Milwaukee River, the Kinnickinnic River, and the Milwaukee Harbor. This prominent space offers an original and relaxing experience for visitors along the water's edge. The project features quaking aspen trees, fanciful lighted benches, and a variety of different textured walking surfaces which blends with grasses and march patches,. The project was a product of an international design competition. The winning design was created by Stoss Landscape Urbanism. However, due to budgetary constraints, significant modifications were made to the original design and the project was awarded and completed on time and on budget

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. This initiative is formally known as the Residents Preference Program (RPP). Under the program, at least 40 percent of all hours worked on individual city contracts must be allocated to unemployed or underemployed city residents.
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 25 percent of all work contracted by the department.

DPW also applied the Local Business Enterprise ordinance which allows certified local businesses a 5% advantage on their bids. In 2010 DPW awarded LBE bidders over the lowest bidders 9 times.

Support for Business

PUBLIC WORKS SUPPORT FOR BUSINESS PROGRAM

In 2010 Mayor Tom Barrett and Public Works Commissioner Jeffrey Mantes launched the "**Support for Business Program**". The program's main purpose was to minimize the impact of the 2010 stimulus funded (American Recovery and Reinvestment Act) construction projects on abutting businesses throughout the City of Milwaukee. The program featured an increased level of neighborhood outreach, a web micro-site, a Business Guidebook, and several other business assistance tools.

The centerpiece of the "Support for Business Program" was a team of "community liaisons" each of whom acted as a single point of contact on each major project. The liaisons and DPW construction staff met with businesses on a regular basis before and during the projects. In addition to updating local businesses about construction project schedules, the liaisons were advocates on behalf of the businesses and help provide solutions such as access to driveways, and providing additional temporary off street parking, such as City owned lots. This was done in cooperation with the Department of City Development.

Other resources included a neighborhood business signage program. The program consisted of 8 foot by 4 foot signs listing the names of the businesses with a large "Open for Business" tag line on the top of the signs placed in prominent locations. Businesses received a Milwaukee Construction Survival Handbook and had access to a micro-site located on the Department of Public Works' website.

The micro-site listed project updates with photos along with the telephone number and email address of the liaison assigned to the project. Also included were newsletters and Frequently Asked Questions sheets for each project as well. Additional tools provided on the "Support for Business Program" micro-site included a downloadable Milwaukee Construction Survival Handbook, "Open for Business" (11 inches by 17 inches) sign and a template customer letter that businesses were encouraged to distribute prior to the construction project.

The "Support for Business Program" was developed by a group of Department of Public Works public affairs, communications and civil engineering professionals, in conjunction with an external communications firm, Boelter + Lincoln, and students from the University of Wisconsin – Madison, La Follette School of Public Affairs. The students studied existing construction mitigation programs in other cities. Their findings were presented to the City of Milwaukee Department of Administration's Budget and Management Division. The program incorporated a variety of communications "best practices" used by Department of Transportation and/or Public Works in other areas of the United States.

During the 2011 construction season, the "Support for Business Program" will include educational and technical assistance opportunities to all willing impacted businesses through the office of the University of Wisconsin-Milwaukee's Small Business Development Center.

Operations Division

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Operations Division Director

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Fleet Services Manager

David Sivyer,
Forestry Services Manager

Paul Fredrich ,
Facilities Manager

Who We Are

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

Sanitation

Sanitation provides some of the most visible and necessary municipal services to city of Milwaukee residents including garbage and recycling collection, street and alley sweeping, leaf collection and snow & ice clearing. During 2010 staff displayed excellence in service delivery in the following areas:

- **Flood Response:** Crews rose to the occasion in servicing 11,600 requests for removal of over 7,300 tons of debris damaged in the June floods. Residents sent many kudos of appreciation for the quick and professional response.

(*DPW crews remove water damaged debris from entire neighborhoods*)

- **Project Clean & Green:** Our annual spring clean up and beautification program provided amnesty to Milwaukee residents on garbage set-out limits. Clean & Green included collection of bulky items, organized neighborhood cleanups, borrow-a-tool program through Keep Greater Milwaukee Beautiful and private tree planting. Crews collected over 1,850 tons of refuse during the 7-week program.

- **Recycling Collection Improvements:** Collection improvements provided residents city wide with guaranteed collection dates every three weeks rather than roughly once per month. Thanks to the increased capacity afforded by this strategy, DPW experienced the first year-over-year rise in residential recycling tons since 1997. From April through November total "pickup day request" calls decreased by 96% from 2,377 to 103.

Waste Reduction & Diversion

In response to the dramatic increase in State landfill taxes, Sanitation staff moved forward on the following waste reduction and diversion efforts:

- **Weekend Box Program**: The popular neighborhood clean up box program was modified to allow event organizers better access to the dumpsters. Dumpsters were dropped early on Saturday mornings and monitored throughout the day for removal before they overfilled. This reduced the need for additional equipment to clean up excess debris from the dumpsters and caused a 53% drop in tonnage to 629 tons

- **Self Help Construction Debris**: Operations staff successfully implemented a system to offset costs of construction debris disposed of at the city's self help sites. The sites were reconfigured and a revenue collection system was set up in a very short time period. The nominal charge is $15 per load. Revenue collected from April – December 2010 was $498,719.

(Residents line up to pay $15 per load for construction debris)

- **Salvation Army Partnership**: Staff developed a partnership with the Salvation Army to expand waste diversion efforts at the self help sites. The Salvation Army has placed a trailer on site where residents can drop off still useable items to be distributed through Salvation Army facilities instead of winding up in the landfill.

(Residents can donate still usable items to the Salvation Army versus throwing them away)

- **Shingle Recycling**: Asphalt roofing shingles brought to the self help centers were diverted for recycling starting in April 2010. Through the end of December 2,500 tons of shingles were recycled and reused on road projects.

(Residents drop off roofing shingles for recycling)

The **Recycle For Good (RFG) Campaign** outreach & education campaign continued with new radio, print and online advertisements. Online contests were launched on Jammin' 98.3 and OnMilwaukee.com websites. Over 640 people pledged to improve recycling habits and in return were entered to win theater passes and gift certificates to local stores and restaurants.
The campaign partnered with Keep Greater Milwaukee Beautiful and various community groups who canvassed neighborhoods and distributed recycling totes and collection schedules. The campaign achieved its goal of 30% increased recycling for the special emphasis area. The City's Materials Recovery Facility hosted 7% more attendees than in 2009 with 2,454 students and 396 adults taking the recycling education tour.

DPW expanded its **Electronics Recycling** collection in July to include TVs and other items banned from landfills under Wisconsin's new electronics recycling law. In just half a year's time, the amount of electronics collected exceeded the total for all of 2009.

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, augmented by a fuel tank truck capable of field fueling of diesel and gasoline. 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.

Fleet has continued to move toward 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 has been installed on a total of 641 vehicles as of the end of 2010. Each of these vehicles are now equipped with RFID technology to automatically capture mileage and other data, providing more accurate fueling information and cost tracking.

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:

- **Compressed Natural Gas (CNG)**: In 2010 the City was awarded a grant for the marginal cost purchase of twenty CNG refuse packers, full funding for two high-capacity CNG refueling stations, and assistance toward the purchase of 22 hybrid vehicles. The CNG refuse packers are much quieter and cleaner than their diesel counterparts, and cost less to fuel.

- **Reducing Fleet Emissions:** This is accomplished through the use of cleaner-burning soy and corn based biodiesel fuel in all diesel equipment, and purchasing cleaner emission vehicles whenever possible. Since 2006, the City has used over 400,000 gallons of biodiesel, displacing an equal amount of petroleum diesel.

- **Conserving Fuel:** 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 helps conserve fuel

- **Purchase of Hybrid Vehicles:** This greatly reduces 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 practices such as:
- Use of re-refined hydraulic oil
- Recapping Tires: 798 per year
- Recycling Tires: 65 tons per year
- Recycling Automotive Batteries: 950 per year
- Recycling metals, including rare metals from replaced catalytic converters
- Recycling and/or reusing drain oil for supplemental heat in facilities
- Crushing used filters to drain excess oil prior to recycling the filter

The City of Milwaukee's fleet was recognized as one of the **Top 40 Government Green Fleets** in North America by Government Fleet Magazine. All federal, state, and local government fleets in North America were eligible. The Government Green Fleet Award is based on a comprehensive set of criteria specifically tailored around the challenges and requirements of public fleets such as fleet composition, fuel & emissions, policy & planning, fleet utilization, education, executive & employee involvement, and supporting programs from outside entities such as Wisconsin Clean Cities and the Wisconsin Office of Energy Independence.

Notable equipment purchased in 2010 includes:

- **One refueling tanker truck,** capable of dispensing 1,200 gallons of diesel fuel and 400 gallons of gasoline to vehicles and equipment in the field. This truck is also used at the scene of a major fire for refueling emergency equipment on site for extended periods. This truck utilizes both the older mag-stripe fuel card and the newer wireless automated fueling (WAF) system, and accurately downloads all transactions directly to the centralized fueling system. Fuel is quickly loaded onto this truck directly from the underground storage tanks, enabling this truck to be used as an emergency fueling station in the event of power failure anywhere in the City.

- **Nineteen refuse packers** with 25-yard bodies for residential collection and snow plowing. Two of these trucks are the first of their kind with compressed natural gas (CNG) powered engines. These two units were partially funded through a grant, cost less to fuel, and have exceptionally clean emissions.

- **Four street sweepers** equipped with updated design for improved visibility for the operator, plus an automatic lubrication device, to reduce required maintenance and increase service life. These sweepers are much quieter than previous units, improving the quality of services provided.

- **Ten recycling packers,** with dual compartments, for collecting and separating both paper, and co-mingled glass, metals and plastics. These trucks are equipped with a cart lifter that separates these commodities with a single cycle of the cart lifter.

- **Three catch basin vacuum trucks,** equipped with 20-yard capacity debris bodies. These trucks are used for leaf collection and catch basin cleaning, providing exceptional power for collecting large, heavy debris.

- **Seven 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.

Forestry

Environmental Services is responsible for the maintenance and care of the City's urban forest which is made up of 193,000 street trees and 476 acres of greenspace, including 120 miles of landscaped boulevards. In 2010, Environmental Services cycle pruned 27,373 trees, planted 4,166 new trees and removed 3,845 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

Technology Integration

Over the course of a year Forestry personnel will handle 10,000 -12,000 complaints related to tall weeds and grass, sidewalk snow, roadway vegetation encroachments and hazardous trees. Records documentation and processing associated with code enforcement activities (field inspection results, digital photos, and call center data entry and reconciliation) has historically relegated technicians to about 4 hours of office work daily. In 2010, Forestry worked with DPW-IT programmers to develop and integrate new field software and hardware tools to streamline data collection and records processing to increase code enforcement staff capacity.

(Mobile data collection increased Urban Forestry Technician field capacity by 50%)

The new field computers equipped with a digital camera and GPS receiver allow technicians to accurately identify the property address from GIS parcel records, link photos to code enforcement records and automatically sync DPW Call Center requests and inspection updates in a fraction of the time of keyboard entry. The technology integration has significantly improved records management and reduced technician office time by 50%, which increases workload capacity and field time spent inspecting and resolving citizen complaints.

The Strengthening Diversity in Urban Forestry Service Delivery – Urban Forestry Training Initiative graduated 13 participants in its first year. Successful participants completed 32 weeks of arborist training to prepare them for work in the tree care industry. Upon completion of training, 12 graduates were employed with private tree care and landscape companies including American Tree Experts, Asplundh, Hoppe Tree Service and Crawford Tree and Landscape Service.

In an innovative approach to green jobs training, the City's Forestry Division modeled its entry-level staff training program to train low-income Milwaukee residents in arboriculture. Urban Forestry is a long-standing green industry that provides family-supporting jobs. Strengthening Diversity in Urban Forestry Service Delivery trained individuals with little or no experience and knowledge in arboriculture and readied them for a career in urban forestry. Participants learned the technical skills necessary to be successful in the urban forestry profession including climbing, pruning, tree planting, tree removals and operation of specialized equipment. Participants received industry endorsed credentials from the Tree Care Industry Association including the Tree Care Academy™ Grounds Operations Specialist and Tree Climber Specialist certificates. Other credentials included a commercial driver's license, electrical hazard awareness training and CPR certification.

Forestry partnered with the City's Community Development Grants Administration, Milwaukee Area Workforce Investment Board, WRTP/BIG STEP, Tree Care Industry Association, USDA Forest Service, US Department of Housing & Urban Development, AFSCME DC48 and the Milwaukee Area Workforce Funding Alliance. Strengthening Diversity in Urban Forestry Service Delivery received ARRA funding to support training and job creation.

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 inven¬tory as the cornerstone.

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 Trees

Forestry used hyperspectral imagery technology to geospatially locate and map ash trees on public and private property in the City of Milwaukee. The hyperspectral imagery was incorporated with GIS maps to identify property owners with ash trees at risk to Emerald Ash Borer. This is the first use of hyperspectral imagery for urban forestry management and tree species identification and mapping. This data is being used to direct and target public outreach and education efforts in 2010 and 2011 to over 27,000 properties identified with ash trees.

(13,528 ash trees were injected or Emerald Ash Borer protection)

To manage public safety risks associated with Milwaukee's 33,000 ash street trees, the Forestry Division continued its ash street tree injection program in 2010. 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 (approximately 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 13,528 ash street trees were inoculated in 2010.

In 2010 the Forestry Division launched a public outreach campaign to directly contact over 27,000 households identified with ash trees from the City's hyperspectral imagery ash classification data. The purpose of the outreach was to confirm the presence of an ash tree on the property and educate the property owner on the risks and options for managing Emerald Ash Borer. Interns confirmed 6,524 ash trees at 11,800 properties visited. Direct contact was made with forty percent of properties surveyed. Most residents contacted were not even aware they had an ash tree on their property and were consequently not paying attention to state and local messaging regarding Emerald Ash Borer readiness. The outreach will be completed in 2011.

Environmental Services developed a plan to protect the City's 120 mile landscaped boulevard system. The 3-year **Sustainable Boulevards** 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.

(One of 276 new signature beds installed by Forestry resulting in $180,000 annual savings)

Sustainable Boulevards was substantially completed in three planned phases (2008-2010). Since 2008, approximately 1,800 low-impact landscape beds along 120 miles of boulevards have been removed and 276 new signature beds have been constructed at strategic locations. A total of thirteen signature beds scheduled to be installed

in 2010 were deferred until 2011 or beyond due to street reconstruction projects. A total of 2,800 new shade trees were also added to connector boulevard segments through 2010. Requested funding to plant an estimated 1,500 shade trees on phase III connector boulevard segments was not authorized in the 2011 budget and this work will be completed over time as resources become available. The City's budget allocation of 1.6 million to construct the new signature beds was leveraged by Milwaukee's municipal nursery, which grew most of the plants required to support Sustainable Boulevards at a substantial savings over comparable wholesale purchase.

(before)

So what makes Sustainable Boulevards sustainable?

- Low maintenance plant composition and simplistic design. Simplistic designs utilizing perennials, flowering shrubs, and ornamental trees and only limited annuals in Signature Beds will reduce maintenance frequencies.

- Fewer, but larger landscape beds. The strategic placement of larger signature beds near key intersections, commerce centers, landmarks, and gateways to the city will enable the beds to be serviced more efficiently than the smaller widely scattered beds they replace.

- Water conserving automated irrigation. Sustainable Boulevards replaces Milwaukee's manual overhead irrigation system with a sophisticated automated drip irrigation system. Automation of the irrigation system represents a significant savings in labor costs.

- 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 enabled the City to reduce the seasonal workforce needed to maintain boulevards by $180,000 annually, beginning in 2011.

(after)

In commemoration of the 100th Anniversary of the Boy Scouts of America, Milwaukee Forestry teamed up with several Boy Scout troops in the Milwaukee area, Greening Milwaukee, the Milwaukee River Revitalization Foundation and Milwaukee County Parks to plant a total of 100 new trees at four locations during **Arbor Day** week. Oak saplings provided by Greening Milwaukee were planted at a Milwaukee River restoration site (Gordon Park) to offset the eventual loss of ash trees due to Emerald Ash Borer. Scouts also planted trees at Falk Park in Oak Creek to provide additional tree canopy and wildlife habitat, and six large shade trees on vacant lots in the 1600 block of West Center Street. Six larger shade trees planted at the Boy Scouts Service Center on Arbor Day completed the 100-tree goal. Boy Scouts who participated in the tree planting activities earned a 100th Anniversary Arbor Day patch award.

(Milwaukee scouts planted 100 trees in commemoration of the 100 year anniversary of the Boy Scouts of America)

Alderman Michael Murphy and Commissioner Jeff Mantes were joined by Ed Brandon, Boy Scout Executive, Milwaukee County Council – BSA, Gloria McCutcheon, Wisconsin Department of Natural Resources, and Jeff Wolters, Wisconsin Urban Forestry Council.

During the ceremony the City was presented with its 31st consecutive Tree City USA award, a milestone few cities have achieved, a Tree City USA Growth award, and an Innovation in Urban Forestry Award from the Wisconsin Urban Forestry Council.

The 97th annual joint **City/ County Christmas Tree Lighting** ceremony was held on November 18th at Red Arrow Park. The Christmas tree, a 36-foot Colorado blue spruce was donated by south side resident Ms. Rada Filipovic and harvested by Forestry staff on November 10th. The tree stood in the yard of the family for 20 years. the tree was donated not becasue it had grown too large for the space; it wasn't pushing up the sidewalk or growing into the neighbor's yard. Ms. Filipovic said that she just thought it would make a beautiful Christmas Tree for the city and County of Milwaukee.

Infrastructure Services

Jeffrey Polenske,
City Engineer

Clark Wantoch,
Administration & Transportation Design Manager

Dale Mejaki,
infrastructre Operations Manager

Martin Aquino,
Engineer- In - Chief Environmental Section

Venu Gupta
Facilities Director

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.

Administration

The Administration Unit is responsible for business operations, budget coordination, personnel administration, accounting and clerical functions for the Infrastructure Services Division. Administration also coordinates accounting functions along with the Department of Public Works Administration Services Division and the Comptroller's Office. The accounting services include establishing projects, recording payments, monitoring costs, and closing project budgets and expenditures for the Transportation Unit and Environmental Unit in coordination with the Construction Unit. In addition, the Administration Unit is involved in accumulating, categorizing, recording and reporting operation and maintenance expenditures for the Infrastructures 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. Responsibilities include recording and monitoring expenditures that include payments to contractors, cost of City of Milwaukee 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.

The Administrative Unit completed the annual report of the Mid-Year Review of the financial condition of the Sewerage System. The Commissioner of Public Works is required to file this report with the city clerk on or before July 1st of each year as stated in the Master Resolution for the Sewer Maintenance Fund to secure bonds. The Infrastructure Services Division works in conjunction with the Budget Office and the Financial Division of the Comptroller's office to evaluate data for this report. The Sewerage System has a required Debt Service coverage of 1.2 times net revenues. The report determined the Sewerage System is in compliance with the covenant as found in Article VIII of the Master Resolution.

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 Milwaukee 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.

Administration of the City of Milwaukee's $15 million capital paving budget by the **Project Programming Unit** resulted in the approval of 50 street paving and 9 alley projects in 2010, and the award of $8.2 million in contracts for local streets and alleys.

The Project Programming staff appeared before the Common Council's Public Works Committee for public hearings on 76 assessable paving, new sewer and new water projects. In addition, resolutions were prepared to authorize engineering and construction on approximately 500 assessable and non-assessable public improvement projects. Upon completion of the work, the Project Programming Unit reviews assessments, prepares and issues the associated special assessment bills to the property owners affected by the work. In 2010, 1809 bills were issued resulting in $5.1M in revenue to the City of Milwaukee, noting that a very complicated West Canal Street was billed to the property owners.

The Major Projects Unit coordinated the funding and design of several Federal Stimulus paving and bridge projects in 2010 at an approximate cost of $26 million funded under the American Recovery and Reinvestment Act (ARRA). The following ARRA projects were constructed in 2010:

- 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 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
- West Winnebago Street from North 6th Street to North 7th Street (Round a bout)
- City of Milwaukee South Various Street Projects(S. 6th Street, West Bolivar Ave. and W. Lapham Boulevard)
- City of Milwaukee North Various Street Projects(N. Teutonia Ave. , W. Locust St. and N. Dr. Martin Luther King, Jr. Dr.)
- East/West North Avenue from North Martin Luther King Drive, Jr. to North Booth St.
- South 13th Street from West Cleveland Avenue to West Windlake Avenue

The Major Projects Unit is involved in the Wisconsin Department of Transportation (WisDOT) North-South Corridor, Mitchell Interchange project. This IH 94 freeway project starts south of West Howard Avenue and runs south to the City Limits and along IH 894 from South 35th Street to East Howell Avenue. Major Projects is involved in coordinating agreements to cover the City of Milwaukee's interests for utility coordinator, traffic mitigation and preservation of Milwaukee's structures during the course of the construction. Construction was initiated in 2009 starting at the project's north limits in the City of Milwaukee and will continue through 2016 progressing south to the state line.

Construction was completed on several portions of the WisDOT North-South Corridor, Mitchell Interchange project which are:

- Layton Avenue Freeway Interchange and Bridge
- North and South bound I94 Collector-Distributor Roadways between W. College Ave. and the Mitchell Interchange
- New northbound I94/43 mainline roadway between the Mitchell Interchange and W. Howard Ave.
- Resurfacing of W. Howard Ave. between S. 6th St. and S. 13th St.
- Traffic Mitigation at W. Howard Ave. and the Northbound I-94/43 on/off ramp
- Traffic Mitigation at various locations for Signals
- Traffic Mitigation at the intersections of S. Howell Ave. and E/W College Ave. and major intersections south to E/W Rawson Ave.

Traffic mitigation for demolition of S. 20th St. Bridge structures over I-894/43 began in November 2010. Traffic mitigation discussion for adjacent Milwaukee County projects on East College Avenue continues in order to coordinate utility and traffic requests from WisDOT involving City infrastructure.

Coordination of the Zoo Interchange project with WisDOT was delayed due to emergency work required on the Zoo Interchange Bridges which was completed in 2010. Major Projects will be involved in coordination of the Zoo Interchange with WisDOT who has not yet rescheduled construction. The Zoo Interchange limits are: USH 45 south of West Center Street to IH 894, IH 894 south to West Greenfield Avenue and IH 94 between South 116th Street and South 76th Street.

Major projects, is continuously working to build the use of the City Oracle Data Base System and to work with the City's Information Technology staff to incorporate the use of Primavera for the Scheduling of State/Federal Aid Projects. Major Projects is further assisting in the development of Administrative documentation now required by the WISDOT for project funding and billing processes for use by the Department of Public Works.

As part of the City's Capitol Improvement Program, plans were prepared by the **Street Lighting Unit** 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 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 2010, a total of 52 streetlights in the city were converted to high-pressure sodium lighting. With this work, approximately 96 percent of the 67,949 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 2010, grant funds or private funding was used to provide historical lighting as part of the neighborhood and business district improvement projects.

Work has continued on the installation of street lighting on 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 2011 for the remaining segment of the project.

Back in early 1990, Mitchell Street business district hired WE Energies to install pedestrian level harp lights at the BID area. Special arrangement has been made to transfer all the harp lights on W. Mitchell St. (N. 5th St. to N. 13th St.) onto the City's street lighting system. The construction work began in Summer 2010, and was completed in Fall, 2010. In addition, an outlet circuitry enclosure will be installed in 2011 to provide energy for holiday lighting.

A Federal Department of Energy economic stimulus grant was received, which will enable the City to replace the short lifespan metal halide lamps with longer lasting light-emitting diode (LED) lamp units in the Historic Third Ward area. The work started in fall 2010 and will be completed in 2011. This change should improve reliability of street lights in the Historic Third Ward area, while allowing the City of Milwaukee to test LED lighting developed specifically for the specialty Third Ward style lighting fixtures.

Street Lighting personnel installed and will maintain and operate circuitry to supply power to the electronic parking meters (Luke) at various locations within the City, with more locations anticipated to be added in 2011.

The **Traffic Control Unit** added five new traffic signals which were were installed in 2010 at the following locations:

- West Bolivar Avenue and South 13th Street
- West Layton Avenue and I-94 Northbound Ramps
- West Layton Avenue and I-94 Southbound Ramps
- North Cambridge Avenue and East North Avenue
- West Port Avenue and North 60th Street

The program to change incandescent light bulbs to energy-efficient Light Emitting Diodes signal indications (LED's) was nearly completed in 2010. LED's use less energy, which in turn reduces air pollution, and are brighter than incandescent bulbs. Only a small number of traffic signals that were under construction in 2010 still need to be changed to LED's, and those installations are planned to be completed in 2011.

The City of Milwaukee continued its program of installing fire vehicle traffic signal preemption devices on primary fire response routes. As the fire vehicles approach, a continuous green signal indication is displayed on the emergency route to clear the vehicular traffic at signalized intersections and give the approaching emergency vehicles unobstructed travel through the intersection. This program improves response times for these emergency vehicles while improving safety for emergency vehicles as well as pedestrian and vehicular traffic at affected intersections. The signal preemption devices were made operational at 20 locations under this program in 2010, for a total of 274 intersections with fire vehicle preemption active throughout Milwaukee.

Due to the I-94 North-South Freeway Reconstruction Project, traffic engineering staff attended weekly meetings and partnered with the Wisconsin Department of Transportation to accommodate the diverted traffic from the freeway to city streets. A project was initiated that uses technology to allow traffic signals to respond to real-time data in order to choose the optimum signal timings for the traffic levels being experienced. If successful, this project could serve as a catalyst to be expanded to other areas of the city.

In 2010, the Traffic Signs Area replaced approximately 3,109 traffic signs throughout the city as part of our sign maintenance program due to fading, vandalism, damage or otherwise missing. Throughout Milwaukee, 2,345 new traffic signs were installed, bringing the total number of traffic signs to 106,596.

The Transportation Section worked with neighborhood associations like Harambee, Riverworks, Wilson Park, Watertower, Havenwoods, Murray Hill, Burnham Park and Historic Layton Boulevard to installed "Neighborhood Identification Signs", as a way to assist these neighborhoods in installing a sense of community and togetherness with their fellow neighbors.

Also, the Traffic Signs Area continued an initiative that was begun in 2009 to replace street name signs installed in the early 1980's, when the City switched from black and white to green and white street name signs. There are approximately 17,000 street name signs that need to be replaced due to fading and overall deterioration of sign sheeting and lettering materials, which should be accomplished over the next several years.

Approximately 196 miles of lane lines and edge lines, and 154 miles of center lines, were painted in 2010 to maintain adequate visibility of pavement markings and to provide positive guidance to motorists. Crosswalks were painted at 1,211 locations, and 212 locations for special arrow and "only" markings were painted to delineate turning movements.

During 2010, the Traffic Control 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.
In 2010, approximately 1,147 requests for the installation of Temporary No Parking signs were processed along with 796 permit requests for occupancy of the right of way. In addition, 149 sewer and water construction plans were reviewed for proper traffic control.

Upgraded pavement markings were installed at the existing roundabouts at the intersections of S. 6th St. and W. Virginia St. and at W. Canal St. and N. 25th St. to reflect the changes included in the 2009 update of the Federal Manual of Uniform Traffic Control Devices. A new roundabout was also installed at W. Winnebago Ave. and N. 7th St. as part of the paving of this intersection.

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. The following is a sampling of work activities that were undertaken in 2010.

In 2010, 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. The Planning and Developments unit attended numerous meetings concerning the I-94 North/South Corridor construction phasing, utility relocation and coordination, traffic mitigation, developing construction haul routes and elected official and public outreach. This construction project is expected to continue through 2016.

Work also continued on the Summerfest Shuttle Bus Advanced Parking Guidance system. This system will provide information to drivers headed to Summerfest to identify available parking in garages located near the shuttle route in the downtown area. It is anticipated that

this initial deployment will spur the development of a more comprehensive downtown parking management system. Significant effort was expended in evaluating the impacts of new requirements contained in the 2009 Manual on Uniform Traffic Control Devices (MUTCD) on project sign design and possible conflicts with the Americans with Disabilities Act (ADA). The first phase is scheduled to be implemented in late 2011, and design for the second phase will continue in 2011.

Planning and Development continued its involvement with the Milwaukee Neighborhood Traffic Management Program. Over 100 inquiries were responded to in 2010, 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.

In 2010, significant gains were made to support bike initiatives in the City of Milwaukee. New bike lanes were installed on several streets, bike route maps were distributed, and additional bike racks were installed bringing the total to over 2,500 in the City.

The City of Milwaukee continued to work with the Bicycle Federation of Wisconsin to update the Bicycle Master Plan. The new plan was to be complete in 2010. Also, the landscaping project in the Beerline Bike/Recreational Corridor between East Burleigh Street and East Keefe Avenue was undertaken in 2010

Engineering continued on the Kinnickinnic River Bike Trail over the former Union Pacific Railroad right-of-way between South 6th Street and East Washington Street, which includes a new bicycle bridge over South Chase Avenue. Construction of this Congestion Mitigation and Air Quality (CMAQ) funded bridge and trail is anticipated to begin in 2011.

The Planning and Development Unit has been working on completing design for the Marsupial Bridge improvements and all the regulations from the State due to the project being funded with federal dollars. The Planning and Development Unit makes sure everything is correct including maintenance agreements, correct lighting plans from the consultants, bid package information and environmental impacts.

Work continues cooperatively with the Menomonee Valley Partners business group in their efforts to redevelop the Menomonee Valley in an environmentally sensitive and sustainable fashion. The Planning and Development Unit continued to participate in planning efforts for the public spaces within the Menomonee Valley Industrial Center including the development of an extensive plan to improve bike and pedestrian access from the near south side neighborhoods. Preliminary engineering and right-of-way acquisition were completed and construction was completed on the first element of the community park known as the Valley Passage Project which includes the approach, retained cut section, box culvert under the CP Rail corridor, and bridge over the Menomonee River. This project will provide a direct bike/pedestrian connection from West Pierce Street to the Menomonee Valley. Preliminary engineering continued on the Valley Passage II project which will provide additional Hank Aaron State Trail connections including an additional bridge over the Menomonee River at 33rd and Court, a new bridge over CP Rail tracks to Mitchell Park, trail extension through Airline Yards, and numerous park amenities.

During 2010, Planning and Development continued its role of assessing impacts to the public way through the review of local and state legislation, and encroachments and obstructions affecting various public improvement projects. The Planning and Development Unit also continued to provide public service assistance to our citizens by investigating a variety of traffic, roadway, and railroad grade crossing condition complaints. There was also a continued role in reviewing the condition of hollow sidewalks that may be impacted by planned paving projects.

Work will continue toward implementing streetscape and bicycle/pedestrian enhancements throughout the City of Milwaukee. Additional residential neighborhood traffic calming projects and improvements to neighborhood business districts are planned. Planning and Development will continue to work towards improving the quality of life for Milwaukee residents.

Environmental Engineering

The Environmental Engineering Section (EES) 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. Other responsibilities include handling the administration and implementation of Milwaukee'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 EES manages various infiltration and inflow reduction activities required to meet Milwaukee Metropolitan Sewerage District's Rules.

The Environmental Engineering 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 Sewer Design Section prepared plans and special provisions for 100 sewer projects for 2010. 10.51 miles of replacement sewers and 12.82 miles of rehabilitation of existing sewers by trenchless methods were designed and completed by contractors. The total cost of these projects was $25.80 million. Some of the major projects include the following:

- West Bluemound Road Sanitary Sewer Relocation Project: This project was designed to address sewer backwaters, hydraulics, and structural problems. The existing sanitary sewers in the area were deteriorated and incorporated an existing siphon under Honey Creek. The outlet was relocated from an existing shallow Milwaukee Intercepting Sewer (M.I.S.) to a new 75-foot deep M.I.S. outlet and the siphon was removed. The total cost of this project is $4.6 million and is expected to be completed in May 2011.

- East North Avenue from North Oakland Avenue to North Cambridge Avenue Sewer Lining Project: This project consisted of approximately 1,800 feet of 12-inch to 36-inch combined sewer relay and approximately 3,000 feet of 12-inch to 66-inch combined sewer cured-in-place lining work. The existing sewer was mainly constructed with brick and was over 120 years old showing signs of structural deterioration. This project was contracted at a total cost of $4.5 million and was completed in December 2010.

- North 26th Street and West Vine Street Relocation Project: A relocation of a 48-inch diameter combined sewer from a shallow 96-inch diameter combined sewer outlet to a much larger and deeper 120-inch diameter sewer outlet was constructed. This project added a greater level of flood protection for the properties in the area. The total cost of this project was $700,000 and was completed in December 2010.

- Sewer Lining and Infiltration and Inflow (I/I) Reduction projects: As part of the City's ongoing program to reduce Infiltration & Inflow (I/I) in the sanitary sewer system, more than 10.4 miles of sanitary sewers were rehabilitated citywide with a cured-in-place lining method. By lining sanitary sewers, the amount of clear waters entering the sanitary system will be greatly reduced, thus reducing the possibility of sewer backwaters into homes and sanitary sewer overflows into adjacent waterways.

- City-Wide Sewer Examination project: As part of the City's ongoing program to monitor and examine the condition of its sewers, more than 80 miles of sanitary, storm, and combined sewers were examined by closed circuit television (CCTV).

In 2010, the **Storm Water Management Unit** reviewed and approved 22 storm water management plans.
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, the city awarded 3 contracts in 2010 for a total cost of $1.15 million to construct a detention pond and bioinfiltration facilities at the following locations:

- Hartung Park Detention Pond: A $750,000 contract was awarded for the construction of the Hartung Park detention pond at North 99th and West Concordia Streets. The detention pond stores and treats stormwater runoff from approximately 350 acres of tributary area before discharging into the Menomonee River.

- Grange Avenue Medians: The Grange Avenue medians bioinfiltration project was completed at a cost of $262,000 and it consisted of replacing the conventional medians in West Grange Avenue between South 19th and South 26th Streets with engineered soil to treat the stormwater runoff from the adjacent roadways. The bioinfiltration areas utilize 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.

- Destiny High School: A $183,000 contract was awarded to install four bioinfiltration areas at Destiny High School, located at 7210 North 76th Street. The project involved the replacement of storm water inlets with four bioinfiltration areas to treat storm water runoff from the school's parking lot by trapping pollutants that exist in storm water runoff before the runoff makes it to area streams and rivers.

Dry weather testing consists of visual and chemical tests for pollution at each outfall. EES performed a total of 920 dry weather tests, including the testing of 376 outfalls. The dry weather testing identified 157 locations in eleven areas as being potential sources of pollution. Private property inspections, smoke testing of the sanitary sewers and dye testing were preformed at these locations to narrow down the individual properties resulting in referrals to the Department of Neighborhood Services for further action. The properties identified are in the process of being corrected.

A total of 15 sanitary sewer systems were monitored in 2010. Flow monitoring data is analyzed to determine the quantity of infiltration and inflow (I/I) in a system, flow restrictions, MIS surcharges, and other problems that may lead to backwater complaints and/or overflows.

An inspection contract in the amount of $96,000 was awarded to inspect 4,525 sanitary manholes. This work provides a more accurate assessment of Milwaukee's existing sanitary manholes and helps to identify defects that may cause infiltration and inflow and other structural defects. A contract for the repair of 3,386 sanitary sewer manholes was awarded at a cost of $1,933,000. 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.

The Environmental Engineering section awarded a sanitary bypass station rehabilitation contract in the amount of $493,000. 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 at 8 sanitary bypass pump sites.

In 2010, a contract for the monthly inspection of all sanitary bypass pump stations and sanitary lift stations began. We also worked with the DNR to create a procedure that allows the testing of sanitary bypass pump stations by isolating the pump manholes and filling them with water to simulate a large rain event. This comprehensive method of testing has provided valuable information on the readiness of our bypass pump system.

The **Automated Mapping and Drafting Unit** drafted a total of 207 sewer construction plans in 2010. These plans are used in the installation, replacement, or rehabilitation of sanitary, storm, and combined sewers at various locations throughout the City of Milwaukee.

In 2010, efforts were continued 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. Another task included the efforts to move forward on digitizing of sewer laterals and other geographic features onto our maps.

Other responsibilities include:

- Provide the public and other City of Milwaukee departments with maps and information regarding 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

The **Underground Operations Unit** is responsible for cleaning, examining, and repairing the City of Milwaukee's various sewer systems (sanitary, combined, and storm) and structures (manholes, catch basins, and storm inlets). Responsibilites include responding to and investigating complaints of backwater and street ponding throughout the City of Milwaukee.

This year in particular posed to be a challenging one for Underground Operations because of the heavy rainstorms and flooding on July 22 which resulted in an increase of requests for cleaning, repairs, and maintenance. Underground Operations also replaced and installed additional structures to catch more storm water in several areas with surface flooding issues. Over 11,000 backwaters complaints (basement flooding) and over 400 street ponding (surface flooding) calls were serviced. Personnel from Streets / Bridges, Environmental Engineering and Infrastructure assisted with completing the service calls. As a result of the heavy flooding, 435.02 miles of sanitary and 99.59 miles of combined sewers were cleaned. Also 9,954 catch basins and 26,657 storm inlets were cleaned.

Although Communications conduit and manhole repairs were also disrupted due to the major flooding event, there were some major underground conduit installations and communication manhole projects performed by Underground Operations including:

- 24,156 feet of conduit installed on W. State St., N. Prospect Ave. to N. Edison St.
- 4,000 feet of conduit installed on the N. Humboldt, E. Kane Pl. to N. Commerce.
- 1, 200 feet of conduit installed on W. Hampton, N 31st St to N 32nd St.

Facilities Development & Management

Operations and Maintenance (O&M) Sections provides building services for many DPW facilities. The scope of services performed keep all city government buildings 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 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 resulting in continued energy and operational efficiencies which support the Mayor's sustainability goals. We have reduced DPW building energy consumption in 2009 by over 12% and are well on our way in 2010 to EXCEED the Mayor's mandate of 15% reduction by 2012.

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. Following are just a few of the projects managed by this section.

- **Cameron Yard:** To better serve DPW Milwaukee Water Works(MWW), water meter upgrade project, FDM constructed a new interior office facility, converting previously abandoned garage/warehouse space. This is sustainable design and recycling materials in the finest degree…in this case a discarded facility was brought back to life and transformed into a viable, comfortable work space.
- **Linwood Office remodel**: The MWW also required an upgrade to the engineering space at the Linwood Water Treatment Facility.
- **Tow Lot:** Long overdue expansion of the public pay window area as well as general office modernization was completed in 2010. The efficiency and office flow was dramatically improved.

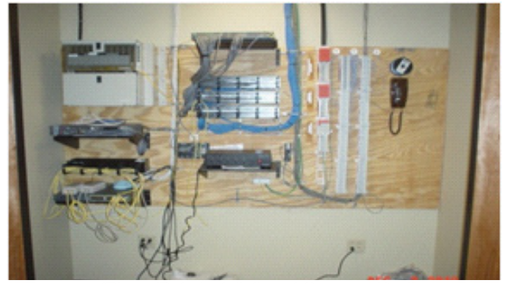
The Mechanical Design Unit's engineering professionals leads DPW in managing and/or coordinating the planning, programming, design and construction process of mechanical systems for all City owned buildings. Staff provides engineering design services for HVAC, plumbing, fire suppression, fire detection, elevator modernization, asbestos abatement, lead paint abatement, renewable energy. The Mechanical Section also engages in one-of-a-kind projects, like replacing the jail sell doors at the Police Administration Building. These were completed on the 5th floor of the PAB this past summer.

Another state-of-the-art project the Mechanical Section completed this year was design and installation of Two solar hot water heating systems at Engine Houses 13 & 23.

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. The Communications Unit also installs all new phone data installations in City buildings.

(Fiber Optic Splicing Truck)

In 2010, the Communications Unit continued to maintain the Avaya phone system. The phone system has switches distributed throughout City buildings to provide the features of the Avaya phone system to City staff at outlying facilities. The Avaya phone system allows Communications to install a telephone system using the Department of Public Works (DPW) network, utilizing only a pair of fiber. In the past, providing phone service involved running copper cables several miles to the nearest phone node. With the present system, relocating a phone system to meet City needs is considerably easier because of reduced cost, reduced size, reduced power needs and reduced environmental needs.



(Phone/Data Installation at Cameron Yard)

The Electrical Services section is made up of skilled electricians, most of whom hold the Master Electrician credential. DPW electricians are thoroughly engaged in the energy savings initiative and have installed hundreds of motion sensors, highly efficient light fixtures, and implemented numerous other electrical strategies to reduce energy costs. Additionally, staff does all electrical installations associated with capital projects. Below is one project we completed in 2010, the Police Administration Building substation, which provides and backs up crucial power requirements to MPD citywide.

(The PAB Substation)

(The PAB Substation)

The Recreational Facilities Design 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 48 active areas and 11 passive areas that play a significant role in improving quality of life for Milwaukeeans. FDM staff, in

corroboration with Milwaukee Public School officials, also provide design and reconstruction services for 37 MPS play fields.

(66th & Port)

(Hartung Park)

The Security Section of Facilities Development & Management is responsible for services and solutions aimed at managing risk and mitigating loss and damage to the City of Milwaukee's property and personnel. The Security Section reports on incidents, analyzes data and identifies trends. Information gained from this analysis can provide a basis for security system improvements citywide.

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 streets, alleys and sidewalks
- Field survey services for street paving, bridge, sewer and water improvement projects
- 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

The **Street Maintenance Section** administers four types of maintenance contracts; pavement seal coating, crack filling, asphalt pavement resurfacing and sidewalk replacement. In 2010 Street Maintenance received additional funding from the Community Development Block Grant (CDBG). These monies supplemented existing crack filling and asphalt pavement resurfacing contracts. Under the crack filling contracts, private contractors have crack filled roughly 1,057,903 square yards of pavement throughout the city utilizing a rubberized joint seal. CDBG funding is for two years and additional crack filling will be completed in 2011.

2010 marked the eleventh season of using the "Slurry Seal" method of seal coating asphalt pavements. This years' program was a success, receiving favorable public and aldermanic reaction while receiving very few complaints. City streets received 182,877 square yards of "Slurry Seal" in 2010. Asphalt resurfacing occurred on numerous streets throughout the City of Milwaukee.

A total of 12,280 tons of asphalt were placed as part of this street maintenance program. 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 these projects. Asphalt resurfacing with CDBG funding occurred on the following streets:

- West Locust from North 27th Street to North 29th Street
- North Sherman Boulevard from West Douglas Avenue to West Mill Road
- West Nash Street from North Sherman Boulevard to North 40th Street
- West Winnebago Street from North 10th Street to North 7th Street
- West Lincoln Avenue from South Layton Avenue to South 35th Street
- West Burnham Street from South Muskego Avenue and South 31st Street
-

A total of 4,797 tons of asphalt were placed as part of this CDBG maintenance program.

The Street Maintenance Section issued two contracts for sidewalk replacement. The first contract concentrated in two areas of the City. Area #1 was bounded by West Burnham Street, South Layton Boulevard, West Lincoln Avenue and South 35th Street. Area #2 was bounded by West Blue Mound Road, North 60th Street, Menomonee River and US-41 (Stadium Freeway). Another contract was issued for removal and replacement of scattered sites sidewalks.

Street Maintenance Section field crews placed approximately 6,730 cubic yards of concrete, sawed 40,100 linear feet of pavement and placed roughly 13,000 tons of asphalt on city streets. Repair projects included asphalt shims on roadways, asphalt shims on sidewalks, small asphalt patches and pothole repairs. In addition to utilizing asphalt patch trucks, Street Maintenance continues to utilize two Roadpatchers. These Roadpatchers are a one person vehicle that can patch potholes. This vehicle uses compressed air and blows out any debris from a pothole; then an asphaltic emulsion is then sprayed into the pothole; followed by a mixture of emulsion and stone; this repair is finally topped with limestone chips that allow traffic to immediately drive over the repair.

Street Maintenance Section tracks customer requests for pothole patching through City of Milwaukee's Call Center. The phone number for the Call Center is (414) 286-CITY. Telephone calls for pothole complaints, offsets along sidewalks, guardrail problems and pavement concerns are recorded into a database by the Call Center. Supervisors access this data, via computer, a minimum of twice daily.

The number of calls regarding potholes that came into the City's Call Center in 2010 was 13,280 calls. This is up from the number of calls that we received in 2009 of 11,894 calls but down from the high volume of calls that we received in 2008 of 16,778 calls.

Street Maintenance crews continued to utilize a sidewalk grinder and the placement of asphalt shims for offsets along city sidewalks. The sidewalk grinder has also been used to correct water flow problems along curb flanges, and within alleys.

The **Bridge Maintenance Area** 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 replacing structural steel and mending steel deck gratings, replacing bascule bridge gear reducers, restoring hydraulic lifting cylinders, repairing or replacing failed expansion joints, removing delaminated concrete, minor concrete repairs, snow removal from the sidewalk area of City owned bridges and viaducts, graffiti removal from City owned structures, weed removal and 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 and along the entire length of our viaducts. Each year several expansion joints on City bridges are repaired or replaced.

This group is responsible for snow clearing of the sidewalks along city owned bridges, viaducts, and pedestrian tunnels, associated, and free standing stairways. Snow procedure and training improvements continue to increase the efficiency of the snow clearing operation.

In 2010 major repairs were made to the machine deck on South 6th Street Bascule Bridge, the mechanical systems of South 1st Street Bascule Bridge, Water Street Bascule Bridge, and Broadway Bascule Bridge, and the hydraulic systems at Saint Paul Vertical Lift Bridge, Michigan Vertical Lift Bridge, and Wisconsin Vertical Lift Bridge.

Bridge Maintenance crews assisted in the repair of areas adjacent to City structures and within the public right-of-way that were damaged by the heavy rains and flooding on July 22, 2010.

Concrete façade panels were repaired or safely removed from several City structures and interior segments of the Kilbourn Tunnels.

Bridge Maintenance crews performed work for other DPW divisions and other City agencies. Reimbursable work included placement of bike racks at scattered sites, work at City Hall and other City buildings. Bridge Maintenance crews conducted concrete and ironwork repairs at many of the city owned structures including municipal garages. Repair work and painting were performed for the Milwaukee Water Works at the Linnwood and Howard Avenue Purification Plants.

Ironworkers are a part of our Bridge Maintenance crews. In 2010 they replaced steel and repaired grating on the Wisconsin Avenue Lift Bridge to keep this bridge safe for vehicular traffic while funding for a complete restoration was sought. Sidewalk plate repairs were performed on Broadway Bascule Bridge and Plankinton Bascule Bridge. Ironworkers repaired several traffic attenuators, guard rails and railings within the public right-of-way that were damaged by vehicular accidents. Ironworkers also repair structural components on City owned bridges that may be deteriorated from years of service. Structural steel members are repaired, reinforced or rebuilt to keep all bridges safe for use by the public.

Bridge Maintenance crews also include painters. These painters abatement graffiti within the public right-of-way by either blasting, painting over or by using chemicals to remove the graffiti. DPW assigns a vehicle and two painters to abate graffiti locations. They respond to complaints called in to the Graffiti Hotline, direct calls from citizens, other City managers, and referrals from Aldermen. These painters also perform blasting and painting operations on City owned bridge or building structures. They often blast and paint the bearings below the bridges or the railings along the sidewalks.

In 2010, the **Bridge Operations Area** conducted 10,962 bridge openings for commercial and recreational traffic. Eleven of the twenty-one movable bridges can be remotely operated from a hub bridge. We continue to update bridge electrical layouts and circuit designs to current design practices. This will increase reliability in the operation of our movable bridges. City electrical mechanics are working side by side with contractors in the restoration of the Clybourn Avenue Vertical Lift Bridge.

The **Inventory Area** handles roughly $6 million of inventory. They serve crews from the Milwaukee Water Works, Street Maintenance, Sewer Maintenance, Bridge Maintenance, Building Maintenance and Street Lighting crews. Finishing

touches were completed on a cold storage building. Materials and inventory that are sensitive to the weather and elements, such as ultraviolet light, are now stored in this building. Inventory staff has continued to improve our bar-coding system. This system continues to improve the tracking of materials used by Street Maintenance, Bridge Maintenance, Sewer Maintenance, Building Maintenance, Electrical Services, Construction Section and the Water Department.

The **Inspection Area** handled nearly 12,400 construction permits in 2010. In addition to construction permits, the Inspection Section also reviews occupancy permits which allow individuals, companies or businesses to place materials, equipment, dumpsters, etc. within the public right-of-way. An example of these occupancy permits are permits issued for a sidewalk café.

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.

The **Bridge Design and Construction Unit** continued construction work in 2010 for the replacement of the Humboldt Avenue bridges over Riverboat Road and the Milwaukee River. The Riverboat Bridge provides increased vertical clearance under the bridge while maintaining an adjacent ramp for access to Riverboat Road. The bridge over the Milwaukee River is a two span precast, pre-stressed 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 form-lined retaining walls and abutments. The two bridges were contracted as one project to minimize traffic disruptions to the area. Construction difficulties included overcoming delays caused by differing soil conditions, unforeseen utility conflicts, and modifications to the foundation system. Both bridges opened to traffic on June 30, 2010.

(Humboldt Avenue Bridge over the Milwaukee River)

In spring of 2009, applications were submitted for three bridge projects to receive funding through the American Recovery and Reinvestment Act (ARRA) as part of the nationwide federal stimulus program. Grants totaling $2,574,034 were received for the rehabilitation of the Sherman Boulevard Bridge over Silver Spring Drive, the rehabilitation of the Vliet Street Bridge over the Union Pacific Railroad, and the replacement of the 6th Street Bridge over the Kinnickinnic River.

The Sherman Boulevard and Vliet Street bridges were packaged under one project in an effort to solicit competitive bids because similar work consisting of repairing concrete spalls, sealing cracks, and adding an epoxy overlay to the bridge deck was planned for both bridges. Contracts for the bridges were awarded on January 26, 2010 and both bridges were opened to traffic in July, 2010.

The work for the 6th Street Bridge over the Kinnickinnic River involved replacing the three cell concrete rigid frame bridge with a longer simple span precast, pre-stressed concrete girder bridge sized to accommodate a 100 year flood event. The engineering design and construction cost sharing is being performed under an Intergovernmental Cooperation Agreement with the Milwaukee Metropolitan Sewerage District (MMSD). The contract was awarded on March 23, 2010 and the bridge was opened to traffic in late December, 2010.

(South 6th Street over the Kinnickinnic River)

Separate ARRA funding was also received for improvements for the future Kinnickinnic River Bike Trail. Grant funds paid for the removal of the deteriorated former Union Pacific Railroad Bridge over Kinnickinnic Ave and the rehabilitation of the former Union Pacific Railroad Bridge over Greenfield Avenue to accommodate bicyclists. The improvements for the Greenfield Avenue Bridge included concrete repairs, removal of contaminated soil, waterproofing the top of the deck slab, installation of a decorative steel railing, and a 10 foot wide paved asphalt bike path. The construction work was completed in July, 2010.

A grant application was prepared for funding through the Transit Infrastructure Generating Economic Recovery (TIGER) grant for the rehabilitation or replacement of three downtown movable bridges. In February, the City was informed they were the lone recipient of TIGER funding in the State of Wisconsin and received $21,500,000 for the rehabilitation of the Wisconsin Avenue and the replacement of the Juneau Avenue Bascule Bridge. Engineering design contracts were negotiated with two consultant firms and a low bid, design build proposal package was expedited to meet the grant requirements of promoting economic recovery and job creation. Construction work for both bridges is expected to begin in mid-2011 with completion in late 2012.

A contract for the rehabilitation of the Hampton Avenue Bridge was awarded on December 8, 2009. The project consisted of re-decking the deteriorated bridge deck, painting the steel superstructure, repairing the concrete piers and abutments, and providing an aesthetically pleasing crash tested bridge railing. Construction for this project started on March 10, 2010 and the bridge was open to traffic on October 10, 2010.

(Hampton Avenue over Lincoln Creek)

A contract for the rehabilitation of the Clybourn Street Vertical Lift Bridge over the Milwaukee River was awarded on June 17, 2010. The work for the rehabilitation of the 1968 built structure includes structural steel replacement of the majority of the lift span, approach span repairs, concrete pier and abutment repairs, expansion joint replacement, refurbishment of the mechanical and hydraulic components, and upgrades to the electrical system. The bridge is the second oldest of the Milwaukee style vertical lift bridges which are unique by having the counterweights hidden in the piers as compared to the common overhead tower design found elsewhere. Construction work for this project started on July 26, 2010 and the bridge is expected to be open to traffic in June 2011.

(Clybourn Street Vertical Lift Bridge over the Milwaukee River)

A contract for the rehabilitation of the Howell Avenue Bridge over the Union Pacific Railroad was awarded on May 11, 2010. The project consisted of re-decking the deteriorated bridge deck, replacing bearing assemblies for both abutments, painting the steel superstructure, repairing the concrete abutments, and providing an aesthetically pleasing crash tested bridge railing. Construction for this project started on July 6 and the bridge was open to traffic on November 23, 2010.

(South Howell Avenue over the Union Pacific Railroad)

A contract for the replacement of the County Line Road culvert structure over the Little Menomonee River was awarded on July 9, 2010. The project start date was delayed until spring of 2011 to allow the bridge and a separate roadway project to be constructed together to minimize traffic disruptions. The project consists of replacing the culvert structure with a bridge meeting the necessary hydraulic and roadway geometrics while incorporating improved aesthetics. The bridge is expected to be completed by summer of 2011.

Specifications and cost estimates were submitted to WisDOT for the rehabilitation of the Lincoln Avenue Bridge over the Union Pacific Railroad. The project consists of re-decking the deteriorated bridge deck, replacing bearing assemblies for both abutments, painting the steel superstructure, repairing the concrete abutments, and providing an aesthetically pleasing crash tested bridge railing. Construction work is scheduled to begin in early spring of 2012.

Bridge Rehabilitation Reports were prepared and submitted to WisDOT for both the South 1st Street bascule bridge and the four span fixed bridge over the Kinnickinnic River.

Preliminary plans and a Rehabilitation Structure Survey Report were prepared, submitted and approved by WisDOT for the rehabilitation of the 45th Street Bridge over the Menomonee River.

Preliminary engineering and structure sizing commenced for the replacement of the Capitol Drive Bridge over the Menomonee River and the North Avenue Bridge over the Canadian Pacific Railroad. Preliminary plans were started for the rehabilitation of the Whitnall Avenue Bridge over the Union Pacific Railroad.

Preliminary plans and specifications prepared by an engineering consultant were reviewed for a proposed pedestrian/bicycle bridge over the Menomonee River at

33rd and Court and another pedestrian/bicycle bridge over the Canadian Pacific Railroad tracks near Mitchell Park. Both bridges will be an extension of the Hank Aaron State Trail along Canal Street and connect pedestrians and bicyclists with south side neighborhoods and businesses. The first phase of this Menomonee Valley Passage initiative saw the completion of a new pedestrian/bicycle bridge over the Menomonee River near 39th and Pierce St.

(39th Street Pedestrian Bridge over the Menomonee River)

The WisDOT Bureau of Structures adopted a new policy which required increased accountability from all consultant structure design contracts. As a result, this unit prepared and submitted a customized Quality Assurance/Quality Control (QA/QC) plan to verify that designs and plans provided by the City of Milwaukee were being designed adequately and accurately, to appropriate requirements, standards, and polices, and that structure plans are complete, constructible, and are in accordance with approved details.

The **Bridge Inspection Unit** performed inspections on 154 bridges for which the City is responsible. The bridge inspection reports were entered into the Highway Structures Inventory System (HSIS) database and copies were submitted to Milwaukee County and WisDOT. The bridge inspections were performed in accordance with the State of Wisconsin Structure Inspection Manual and National Bridge Inspection Standards. Copies of the reports and photos of the deficiencies were given to Bridge Maintenance for their use in scheduling and prioritizing repair work. Types of inspections performed included initial, movable, interim, and routine for the various bridges.

The Parking Structures Unit completed the bi-annual inspections of the five City owned parking structures in 2010. The inspections adopt a report format similar to that used for bridge inspections with major and minor elements of the parking structure given a numerical evaluation rating. Recommendations were given both for short and long term repair needs accompanied by pictures identifying the deteriorated condition. Using the information gathered from the inspections, this unit assisted Parking Administration in the preparation of the six-year Capital Improvement Program for the parking structures.

As a result of the collapse of a concrete facia panel that killed a pedestrian at the O'Donnell Parking Structure owned by Milwaukee County in July, Mayor Barrett directed the Department of Public Works to immediately conduct an interim inspection of the five City owned parking structures. This unit prepared a Parking Garage Facade Condition Assessment report which determined the façades of the parking garages were in fair to good condition with the possible exception of the precast panels on the east elevation of the Mac Arthur Square Garage. These panels were later removed as a precautionary measure.

Final plans and specifications were prepared for application of a water repellant sealer for the concrete floor slabs of the 1000 N. Water Street Parking Structure. The work involves shot blasting the concrete, applying the sealer, and providing new lane striping for all eight levels of the parking structure. This work is anticipated to be awarded in spring of 2011.

Final plans and specifications were prepared and a contract was awarded for repair work on the 9th Street level of the MacArthur Square Parking Structure. The work consisted of concrete repairs to the wall and columns, lane striping, and painting all of the concrete surfaces.

(MacArthur Square Parking Structure 9th Street Level)

The **Miscellaneous Structures Unit** continued to provide engineering review and contract administration for the Department of City Development in connection with the Milwaukee RiverWalk initiative. The unit's responsibility included review and recommendations for approval on contracts, plans and specifications, construction budgets, change orders and payments, shop drawings, and periodic construction field reports for the RiverWalk development. The following riverwalk projects had activity in 2010.

Contract plans, specifications, budgets, and/or payment applications were reviewed for the Third Ward Connector between the River Renaissance and MIAD riverwalks, Aloft Riverwalk located on the west side of the Milwaukee River between Juneau Avenue and McKinley Street, Edge Riverwalk located on the west side of the Milwaukee River upstream of the Holton Street Bridge, Beerline "B" Apartments located on the west side of the Milwaukee River adjacent to Pleasant Street, and various ADA Riverwalk enhancement projects.

Structural analysis was performed for various repair and construction projects including bridges, retaining walls, hollow walks, public buildings, firehouses and bridges with overload vehicles.

Analysis of bridges by this unit for permit overload vehicles continued as the numbers of permit applications and enforcement has increased. 240 bridge analyses of overload vehicles were performed in 2010. The overload review and analysis process has been streamlined by this unit to allow a timely response to the permit desk to avoid trucking delays.

The **Construction Management Area** 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

Inspection and project management services were provided for 40 sewer construction contracts totaling $29.3 million and 16 water main construction contracts totaling $6.5 million. In addition, inspection services were provided for various suburban and private water main installations within the Water Works service area.

In 2010, local paving work consisted of 43 street paving contracts totaling a contract cost of $19.2 million.
The Construction Unit also performs contract 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. For select projects, survey and design duties were also performed.

Construction of five WisDOT paving/bridge projects were managed this year:

- North Humboldt Avenue Bridge over Milwaukee River
- North Humboldt Avenue Bridge over Riverboat Road
- South Howell Avenue Bridge over Union Pacific Railroad
- South 2nd Street from West National Avenue to Menomonee River including decorative lighting
- West Burleigh Street intersection with West Roosevelt Drive and N. 60th Street

In addition, 22 paving/bridge projects were constructed by the WisDOT under the American Recovery and Reinvestment Act (ARRA) as part of the nationwide federal stimulus program. While the construction contracts for these projects were administered by WisDOT, the construction work impacted the City and required monitoring, traffic impacts and coordination of City utility work. In addition, construction personnel were involved in the DPW's Support for Business Program which was launched in 2010. The program's main focus was to minimize the impact of the WisDOT ARRA funded construction projects on abutting local businesses by providing a liaison to each project with a goal of advocating for impacted businesses. Through continuous communications, the program kept businesses abreast of projects' progress and provided an effective tool of identifying needs and concerns and proactive solutions and accommodations. This program will be expanded in 2011.

Emergency response to the July 22nd severe flooding event included mobilizing and coordinating contractor assistance to address a major sewer collapse and subsequent sink hole that measured 60 feet in diameter and 50 feet deep at E. North Ave. and N. Oakland Ave. As a part of that response, a 24 hour construction operation was initiated, managed, directed and staffed with City

personnel to secure the area, assess damages, sequence restoration activities by various public and private agencies and perform final repairs. This enormous effort resulted in the restoration of traffic flowing through this major east side intersection on September 17, 2010, less than 2 months after the initial collapse.

The **Field Engineering Area** provides the required technical paving project design function along with all associated field survey services for sewer, water and street improvement projects. In addition, construction as-built certificates and construction staking activities were performed as needed.

The **Electrical Services Unit** 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. The entire Electrical Services' staff has the necessary dedication and professionalism needed to add to the quality of life for the people who live and work in the City of Milwaukee.

The **Traffic Signal Services Area** operates and maintains over 750 controlled intersections in the City of Milwaukee. 2010 accomplishments included:

- Installed five new controlled intersections at:
- West Cambridge Avenue and East North Avenue
- North 60th Street and West Port Avenue
- West Layton Avenue and I-94 North off Ramp
- West Layton Avenue and I-94 South off Ramp
- South13th Street and West Bolivar Avenue
- Installed and provided the necessary power service for seven new locations for the Milwaukee Police Dept security camera project.
- Installed two solar powered radar speed control signs on West Locust Street and North 17th Street.
- Installed accessible pedestrian signals at the intersections of North Humboldt Avenue and West Burleigh Street and at North James Lovell Drive and West State Street.
- Rebuilt the traffic signals at the intersection of North 60th Street and West Burleigh Street to accommodate new roadway geometric improvements.
- Installed temporary overhead wiring facilities at 71 locations to accommodate paving and other construction projects.

The **Machine Shop Area** provides the support for routine and specialty machining services for the Electrical Services Unit. 2010 accomplishments include:

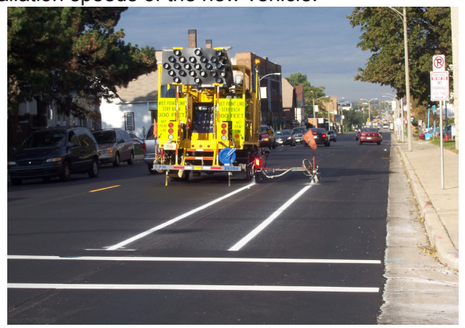
- Repaired numerous poles and bases for the freeway projects.
- Constructed custom base plates and shrouds for North Humboldt Avenue Bridge light poles.
- In-house repair of directional boring machines for additional cost savings to the Department of Public Works.
- Continued support of Electrical Services crews with fabrication of materials for construction and maintenance activities.

The **Traffic Sign Shop Area** 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 2010:

- Completed the painting of 1,800 locations of pedestrian crosswalks and specialty pavement markings.
- Completed the painting of over 1.6 million feet of lane and center line pavement markings.
- Completed the painting of over 269,000 feet of existing bike lane markings.
- Maintained and replaced/repaired 2,143 permanent street traffic signs.
- Maintained and replaced/repaired 757 street name signs.
- Installed traffic control and signage required for 1,080 special events throughout the City.
- Installed over 12,000 temporary parking signs.
- Installed over 200 specialty neighborhood and church signs.

The operation of full printing capabilities for the fabrication of various traffic and street signs is both cost-effective and timely for the City. This included over 5,000 temporary parking, specialty ARRA signage and special event signs

The Traffic Sign Shop received and put into full operation a new, efficient and state of the art long line painting vehicle in 2010. This equipment will supplement the equipment needed to maintain the increased demand and frequency for pavement markings in the City including roadway centerlines, lane lines and bike lane markings. Features on the vehicle include both a driver and a painter to increase the safe operation of the unit along City streets and improve the quality of the paint application. Features of the equipment include a self loading system for paint and beads, video alignment system, flexibility for painting off the left or right sides, attachments for bike lane painting and a computer control system for accurate monitoring and measuring. Efficiencies have been gained in production by the improved systems, increased reliability and increased installation speeds of the new vehicle.



(Traffic line painting vehicle in operation for bike lane painting)

The Street Lighting Area 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 2010 include:

- Removal of the South 20th Street Bridge over I-894 by WisDOT required major street light system alterations including the building, installation and energizing of a new four bay series circuit trans-closure unit and cabling improvements.
- Replacement of the W. Layton Avenue Bridge at I-94 and reconstruction from South 13th Street to South 20th Street by WisDOT required the replacement of the street lighting system. This included temporary lighting circuit trans-closures, cabling, poles and new service connections within a tight timeframe to accommodate the bridge opening.
- Replacement of circuit cabling, new street light poles, outlet circuits and cabinet along W. Mitchell Street from South 8th Street to South 16th Street upgrading an old WE Energies system.
- An underground electrical service line feeding a major street lighting system trans-closure at South 35th Street and West Pierce Street needed to be relocated to accommodate the sale of a City parcel.

Milwaukee Water Works

Carrie M. Lewis, M.Sc.
Superintendent

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

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.

The Milwaukee Water Works (MWW) is a national leader in providing high quality drinking water and monitoring water quality. Crystal clear Milwaukee water is available fresh and pure 24 hours a day. The utility treats Lake Michigan water with a multiple-step process of ozone disinfection, biologically active filtration, and disinfection. While contributing to the high quality of life in Milwaukee, the Milwaukee Water Works offers water intensive and water technology business, industry, and research an abundant, reliable supply of high quality water at a low price and high value.

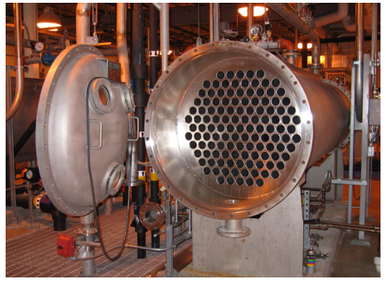
The utility provides water to 16 communities -- Milwaukee, Brown Deer, Butler, Franklin, Greendale, Greenfield, Hales Corners, Menomonee Falls, Mequon, New Berlin, Shorewood, St. Francis, Thiensville, Wauwatosa, West Allis, and West Milwaukee. The MWW sells water to the Milwaukee County Grounds on a wholesale basis.

The self-financing utility, owned by the City of Milwaukee, pays other city departments for services it uses and pays the benefits of its own employees. Water quality and operations are regulated by the U.S. Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (DNR), and the Wisconsin Department of Health Services. Rates are regulated by the Public Service Commission of Wisconsin (PSC).

Since 1998, the Milwaukee Water Works 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 water supply and water pressure to fight fires, and a supply to meet the needs of business and industry.

(Howard Avenue Water Treatment Plant)

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.



(Ozone generator converts liquid oxygen into ozone gas, a powerful disinfectant used to destroy illness-causing micro organisms)

Water Quality staff ensures water quality meets, and in many cases, exceeds regulations. Milwaukee's water quality meets all EPA and DNR standards. The utility tests source and treated drinking water for over 500 contaminants even though the EPA requires tests for only 90. This is done as a precaution to ensure safe water, to collect baseline data for study, and to meet future regulations. To ensure the public is fully aware of all water quality monitoring data, MWW distributes the information in its annual consumer confidence report and on its website, www.milwaukee.gov/water.

Milwaukee's recognition as a national leader in water quality begins with its vigilant water quality monitoring program. The Milwaukee Water Works was one of the first utilities in the United States to begin testing source and treated drinking water for endocrine-disrupting compounds (EDCs) (2004) and to test for pharmaceuticals and personal care products (PPCPs) (2005). None have been found in Milwaukee drinking water. Neither testing nor disclosure of results is required under the Safe Drinking Water Act. In 2008, the Associated Press (AP) cited Milwaukee as one of only 28 major utilities in the U.S. to test source and treated water for emerging contaminants such as EDCs and PPCPs. Milwaukee was the first U.S. utility to post the test results on the Internet. Milwaukee's water quality monitoring system was in full compliance five years ahead of time with EPA regulations to control disinfection byproducts.

The utility relays critical information about emerging contaminants and water treatment and quality monitoring via communications with news media, customer service, and on its website. Customers have ready access to information to ensure their confidence in Milwaukee's water quality and service. The cost of testing for compounds that are not federally regulated and posting of all results on the utility website pays off in the perception the utility is completely open about its processes.

No water utility has the resources to test for the thousands of substances in the environment, many occurring naturally, that are now able to be detected at micro levels in drinking water by new scientific methods. Therefore, the Milwaukee Water Works continues to support drinking water research by the EPA, the Water Research Foundation (WRF), and other government and scientific organizations. The Milwaukee Water Works is a member of the American Water Works Association, the Association of Metropolitan Water Agencies, the WRF, and the Wisconsin Water Association.

Distribution activities focused on scheduled preventive maintenance and scheduled and round-the-clock emergency repair of 19,847 hydrants and 1,956 miles of underground water mains throughout Milwaukee and the utility's retail customer suburbs.

Average daily pumpage in 2010 was 103 million gallons and total annual water sales were 32 billion gallons. Residential water use for 2010 was 45 gallons per person per day, down from 47 gallons per person per day in 2009. The cost of water per household was less than $200 per year.

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 accurately 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. The Milwaukee Water Works manages the billing and forwards the collected charges to the City Treasurer for distribution to other city departments and the MMSD.

In 2010, the Milwaukee Water Works **Customer Service Center** responded to 162,334 incoming telephone inquiries and served 30,612 customers who visited the center in the Zeidler Municipal Building. The Customer Service Center began taking payments by telephone in November, providing additional options for customers and faster processing of payments. The utility redesigned and enhanced its online website, providing easier account access and additional account information.

In its **Use Water Wisely** program launched in 2010, the Milwaukee Water Works helps customers find and repair water leaks to reduce water waste and loss and to conserve the water resource. From billing data, employees identified customers with unusually high water use and counseled them on how to find and fix leaks. Over 8,000 customers received brochures and leak detecting dye tabs. Of the customers who returned a feedback postcard, 66% said they found and fixed leaks. Most of the leaks were found in toilets and faucets. Sixty percent said they used the leak detecting dye tabs we mailed them. Twenty-one percent said they had no leaks but found the information useful.

(Milwaukee Water Works Business Manager Earl Smith shares information with the news media about how preventing water pipes from freezing can save money and water)

Just as batteries in smoke and carbon monoxide detectors must be replaced in a timely fashion, so must batteries in residential water meters, as well as the meters themselves. The Milwaukee Water Works began planning in 2010 for the start of the long range project to replace automated water meters and batteries for residential and small business customers. The PSC requires this to make sure meters and billings are accurate. Also, regular meter readings help customers notice they may have plumbing leaks that produce higher than normal bills. The original automated meters were installed in 1996 and their working life is coming to an end. Meter replacements will be phased in during the next seven to eight years without disrupting regular operations. There will be no additional charge for the meter and battery replacement; it is included in the cost of service.

For this project, the workforce of the Water Meter Service area was expanded by hiring 13 new Water Meter Technicians, four new Water Meter Field Supervisors, and an Office Assistant IV from among current city employees. Two bilingual Customer Service Representatives were hired from an external recruitment list.

The Milwaukee Water Works renovated the former Cameron Field Facility, 2919 W. Cameron, a vacant city

(Interior of Cameron Field Facility)

building and work site, rather than build a new structure to provide work and storage spaces for the project. This transformed a liability to the neighborhood into an asset, improving the neighborhood's quality of life.

The Milwaukee Water Works 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 generation for five critical water infrastructure sites continues with the commencement of construction activities related to a backup power generation system at the Riverside Pumping Station.

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**

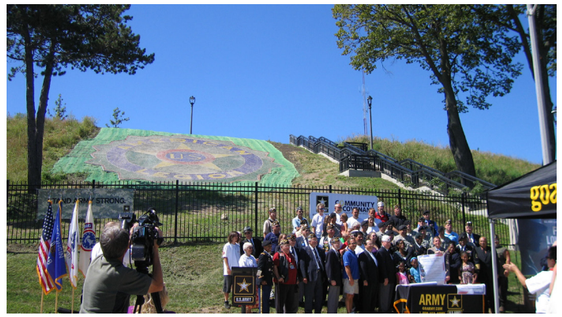
MWW continues to review non-firefighting use of hydrants for water accountability and public safety. Metering of permitted hydrants has been increased. Cross-connection prevention continues to be aggressively enforced. The two Meter Services facilities began metering and charging for bulk water sales to contractors such as those in the landscaping and construction industries. Non-fire suppression uses of hydrants will be removed in future years as alternatives become available.

A public education campaign, in its sixth year in 2010, has eliminated the waste of millions of gallons of treated water by reducing illegal hydrant openings during hot weather. Water wasted due to illegally opened hydrants decreased from an estimated 447 million gallons in 2006 (745 hydrant openings) to 27 million gallons in 2010 (45 hydrant openings).

During 2010, the Milwaukee Water works, through its proactive Vacant Property Turn-Off Program, disconnected water from 1,973 vacant properties in the City of Milwaukee, preventing frozen pipe damage and wasted water.

Milwaukee's abundant, high quality supply of water at a low price is an advantage for water intensive and water technology business, industry, and research, allowing them to perform competitively and profitably in the Milwaukee water service area. The Milwaukee Water Works is part of a network of economic development professionals who work to attract and retain water-related business to the area. The utility supports and participates in the M7 Food & Beverage Council and the Milwaukee Water Council.

The **American Legion Star** in Kilbourn Reservoir Park in the City of Milwaukee provided a lasting honor to the American Legion by re-creating the historic American Legion star emblem on the east hill of Kilbourn Reservoir Park. The hill once covered a water reservoir on North Avenue. The emblem – dating back to the 1930s – originally was made of floral plants. A landscape artist came up with a way to use colored, tumbled recycled

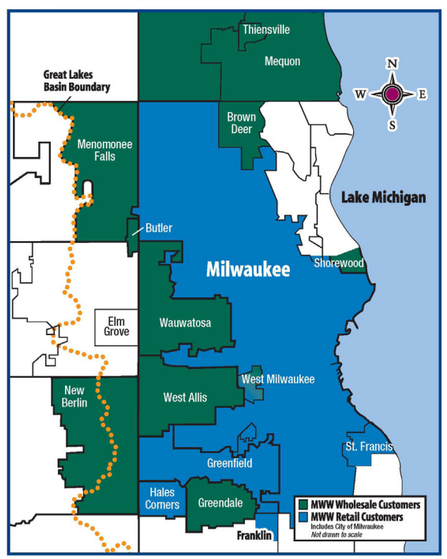


(American Legion Star Dedication Ceremony)

glass pieces to make the old emblem "new." In August, the national convention of the American Legion returned to Milwaukee and dedicated the emblem to military veterans. The project won an award for artistry from the Decorative Concrete Council.

Employees of the Milwaukee Water Works give back to the community they serve. In 2010, utility employees pledged $32,000, up from $23,500 in 2009, to the city's Combined Giving Campaign. They supported the UPAF/Visions campaign with contributions of over $6,000.

Service Map



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

BASIC INFORMATION ABOUT MILWAUKEE'S INFRASTRUCTURE

Number of Buildings	233
Number of recreational facilities	95
Pumps	195
Demand maintenance (requests) performed	16,130
Preventative maintenance (scheduled) performed	1,622

FORESTRY

Trees on city streets	193,000
Trees planted	4,166
Trees removed (all causes)	3,845
Trees pruned	27,373
Boulevard medians and green spaces maintained	476 acres
Stumps removed	2,597
Flowers (annuals/perennials) produced)	300,000
Signature beds installed (2008-09)	276
Landscaped boulevard medians	121.8 miles
Green spaces maintained	59
Tot lots maintained	57
City properties maintained	20
Service Requests	23,144

FLEET SERVICES

Repair Orders	23,482
Preventive Maintenance Inspections Performed	7,353
Tires Mounted	3,533
Field Service Calls, Tires	3,384
Field Service Calls, Other	8,728
Stockroom Activity	$4,952,981

Vehicles Serviced

Automobiles	104
Vans	177
Pickups	299
Police Units	749
Parking Enforcement	53
Packers, Rear Load	136
Packers, Front Load and Roll-Off Trucks	18
Packers, Recycling	53
Tractors	58
Street Sweepers	21
Sewer Cleaners, Flushers, etc.	19
Construction Equipment	484
Trucks, All Other	419
Compressors	79
Sub-Total	2,669
Non-Automotive Equipment	1,987
Total Serviced	4,656

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

SANITATION

Total recyclables (residential tons)	24,521
Household/curbside materials	22,317
Other residential materials	2,204
Leaves and Yard trimmings composted (tons)	30,631
Total residential tons diverted from landfill	61,333
Garbage to landfills (total tons)	249,498
Residential garbage	202,705
Other garbage	65,295
Residential landfill diversion rate	24%
Snowfall (January to December)	49.8 inches
General snow plowings	3
Ice control operations	37
Salt usage (tons)	46,793
Service Requests	91,244
Self-Help users	336,650

SEWERAGE

Sewers examined	225.43 miles
Sewers cleaned	572.10 miles
Replacement sewers	10.51 miles
Sewer lining	12.82 miles
Service calls answered	18,090 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	204
Movable bridges	21
Total bridge openings	13,962
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	154
Bridges, number of openings	13,962
Pavement seal coating (sq. yards)	227,698
Asphalt surface by contract (tons)	19,555
Asphalt patching (tons)	12,100
Crack filling (sq. yards)	1,336,965