ANNUAL REPORT 2003

Photo credit: D. LaHaye DCD

Park East Freeway. The series of photos show various stages of demolition of the Park East Freeway structure over the Milwaukee River and the construction of the new Knapp Street bridge. The Knapp Street bridge will provide the final east/west link in replacing the Park East Freeway with an at grade street.

2003 Milwaukee Common Council

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District 17

City of Milwaukee

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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; and,**
- **Support services and facilities for the Department of Public Works (DPW) and other city departments.**

INITIATIVES FOR 2003

- **Continue working with the state and county governments on major transportation projects, including the Park East Freeway and Marquette Interchange.**
- **Continue to realize more efficient and effective utilization of personnel resources in the Operations Division.**
- **Improve operational efficiency by coordinating service delivery with other government entities.**
- **Reduce plowing on non-arterial streets.**

2003 was an exciting and interesting time for the Department of Public Works. It was the first full year of the Operations Division being implemented. The Department provided services to other government entities. Milwaukee Water Works signed a new contract with a municipality. Administrative Services expanded the Call Center's ability to handle DPW service requests, embarked on a parking education campaign, and provided new services to help pay parking citations. Infrastructure Services completed two very important initiatives for safety and traffic control and Buildings and Fleet consolidated the functions of one garage into another and completed the renovation of the Anderson Municipal Building.

Administrative Services' Technology Support Services provided enhancements to DPW's Call Center that allowed staff to enter service request data and send the request electronically to the responsible Division. Division staff is responsible for fulfilling the service and entering information regarding the resolution of the request. This gives the staff the ability to track the request and provide quick answers to follow up calls from residents. The Call Center has expanded to handle service requests from Infrastructure Services (potholes, street lights out, etc.), as well as Sanitation and Forestry.

The Parking Fund is under the jurisdiction of Administrative Services. Last fall an ad campaign targeted the campuses of Marquette University and University of Wisconsin- Milwaukee to remind students to purchase parking permits and of parking meter violations. Prior to winter parking regulations going into effect, a series of ads reminded residents.

The Department continued to restructure the Operations Division's management structure to gain further operating efficiencies while maintaining service levels. As a result of the efficiencies created, the Forestry and Sanitation Divisions have been able to forge cooperation agreements with local government entities. The Forestry Division folded Milwaukee County's nursery operation into the City's nursery and provided flowers for Milwaukee County. Sanitation provided street sweeping for the city of Wauwatosa, thus providing additional revenue. The Sanitation Division and Forestry Division were combined to form the Environmental Services Division. The combining of the sections will lead to cost savings for the Department and to taxpayers.

Milwaukee Water Works added New Berlin as a new customer in June of last year. The 20-year contract made the city of New Berlin MWW's 13th municipal customer. Milwaukee will get $608,000 a year, helping to hold down water rates for Milwaukee customers. Milwaukee Water Works also received the Gold Award for Competitiveness Achievement by the Association of Metropolitan Water Agencies. The award recognized accomplishments such as consolidating work units and automating functions to streamline workflow without comprising effectiveness.

Infrastructure Services completed two initiatives that improved safety and traffic flow of the City, the Traffic Control Facilities Program and the Emergency Response Management – OPTICOM Program. The Traffic Control Facilities program provided for the installation of new and modification of existing traffic control facilities. The OPTICOM Program allows Milwaukee Fire Department emergency equipment to preempt a traffic signal from the vehicle using optical communications. This reduces call response time and decreases the likelihood of accidents.

Buildings & Fleet Division completed the renovation of the Anderson Municipal Building, a southside landmark, and consolidated the functions of the Southwest Municipal Repair Garage into the Central Municipal Garage. The remodeling of the Anderson Municipal Building included modifying the first through fourth floors and part of the fifth level to provide office space for the Department of Neighborhood Services and the Milwaukee Police Department. Consolidation of the Southwest Municipal Garage into the Central Municipal Garage improved workflow layouts, replace outdated mechanics' equipment to improve vehicle repair efficiency and safety. It also replaced outdated building systems to meet current building codes for energy efficient lighting, HVAC and digital controls, fire, and life/safety systems.

Once again, I want to thank the employees of the Department of Public Works. DPW has the greatest impact of any city Department to our residents on a 24/7 basis. We deliver services to residents and work hard to promote the safety, water quality, mobility, and quality-of-life for all Milwaukee residents and visitors.

Sincerely,

Mariano Schifalacqua

Mariano Schifalacqua
Commissioner, Department of Public Works

Mariano Schifalacqua
Commissioner,
Dept. of Public Works

Message from the Commissioner

Administration Services

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The Administration Services 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 and capital budgets as well as enterprise fund budgets, finance and planning, payroll, personnel, employee safety and contract management. The Division also manages all communication responsibilities for the department including media relations, special event permits, DPW Information Center and the telecommunications infrastructure.

The division manages all parking-related activities including parking enforcement, parking information desk, the City tow lot, towing contracts, citation processing contract, parking structures and lots and parking meters. In February 2000, parking enforcement and the parking information desk were transferred from the Milwaukee Police Department to the Department of Public Works.

MAJOR PROJECTS

The Department of Public Works Administrative Services Division coordinated planning and construction of public improvements for several major projects during 2003. These projects included the Kilbourn Tower condominium building, the Granville Station (former Northridge Shopping Center) commercial complex, and St. Luke Medical Center's expanded parking and materials management facilities. The division also coordinated the design and installation of public infrastructure for a number of single family home subdivisions including the RiverRidge subdivision, Heritage Meadows Addition No. 2, Mayberry Park, and phase II of Cherokee Point.

The Division was successful in securing a $250,000 matching grant from the Wisconsin State Department of Natural Resources in 2003. This grant will be used to construct a new segment of riverwalk linking the existing downtown riverwalk system to the newly constructed riverwalk in the Historic Third Ward. Construction of this new segment is expected in 2004.

Flood Grants. In August of 1998, the City experienced a major flood. Hardest hit was the Lincoln Creek area just north of the Parklawn Housing complex. The City received a major grant from the Federal Emergency Management Agency to repair many of the damaged homes. Approximately 20 homes were so severely damaged or were judged to be at risk for future flooding that they were acquired and demolished. All work under the grant was completed in 2002 and in 2003 the grant was closed out. DPW continues to maintain the vacant lots where the most at-risk homes previously stood.

Landfills. The Department of Public Works' efforts to close its remaining landfills continued in 2003. The State Department of Natural Resources approved the City's closure documentation report for the South College Landfill. A closure documentation report for the Layton and Pennsylvania landfill was submitted to the DNR. And the DNR approved the City's closure plan for the Hartung Quarry site, the City's only active landfill. Active monitoring of groundwater and methane conditions will continue at these sites, along with the Hawley Road and College Avenue North sites, for the foreseeable future.

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. During 2003, 136 formal contracts were awarded totaling over $46 million. Through its contracts, DPW leverages employment opportunities for City residents who live within the Community Development Block Grant boundaries. This initiative is known as the Residents Preference Program. The Department requires that at least 25% of all hours worked on individual City contracts be allocated to unemployed residents of the target area. The Department partners with Esperanza Unida and the Milwaukee Urban League to assist contractors in locating eligible resident workers. All resident workers must be certified by the City prior to a contractor receiving credit for their hours worked. DPW maintains a list of all certified resident workers and reports annually to the Common Council on the success of the program.

DPW requires that contractors use Emerging Business Enterprises (EBEs) in their contracts. EBEs are certified by the City and are mandated by ordinance to be involved in at least 18% of all work contracted by the Department. In 2003, the overall EBE participation level for DPW contracts was 20.1% or about 11.7% higher than the established 18% minimum requirement.

As part of its contracting activities the Department also monitors all public works contracts for compliance with the Prevailing wage and Livable Wage ordinances.

During 2003, the Department continued its efforts to place public works contract bidding procedures on line. Contractors and other interested parties can now find information on the DPW web site about projects coming up for bid, which contractors have taken out plans on various projects, rules and procedures for the EBE and Residents Preference programs, and the results of recent bid openings.

FINANCE AND PLANNING

The Administration Division is responsible for coordinating the operating and capital budgets for the department as well as several enterprise funds, including Water Works, Sewer Maintenance Fund and the Parking Fund. The division is also responsible for tracking and monitoring revenues and expenditures on a monthly basis.

In the 2003 budget, the department's operating budget (excluding enterprise funds) totaled $109.9 million and the capital budget totaled $65.7 million. Revenues were projected to total $30.8 million.

Due to a mild winter in 2003, the Department of Public Works was able to save significant funds in its operating budget. In total, the department saved over $2.4 million in salaries and operating expenditures, representing 2.7% of the total operating budget. In addition, the department saved $1.3 million as a result of the 2003 budget adjustment bill. Also in 2003, the department generated $34.5 million in revenue, an increase of $3.7 million from the budgeted amount. In total, the department provided over $6.1 million to the Tax Stabilization Fund in 2003. This was the second consecutive year the department saved significant dollars in its operating budget and generated additional revenue. In 2002, the department provided $5.4 million to the Tax Stabilization Fund.

The Finance and Planning Section is also responsible for paying invoices and billing City agencies as well as external agencies for services performed by the department. In 2003, this section processed nearly 36,000 vouchers totaling nearly $101.5 million and produced over 4,000 invoices and interdepartmental requisitions totaling $28.5 million.

PERSONNEL/PAYROLL/SAFETY

Contract negotiations continued during 2003. A settlement was reached with Local 195 for 2002-03. Negotiations with other locals are on-going.

The number of disciplinary actions were down 12% in 2003. The number of discharges was also down slightly.

The number of grievances were up 24% in 2003 (207 in 2002, 272 in 2003). This increase was due primarily to an increase in the number of grievances related to the newly reorganized Operations Division. Forty-one percent of the grievances filed in 2003 were related to the Operations Division. This was an increase from 31% for 2002. There were many issues revealed during the implementation of the new division. Through the grievance process and on-going management/labor relations many of these issues should be resolved during 2004.

The Payroll section continued its consolidation and centralization of staff and functions to the Municipal Building during 2003. The final consolidation efforts will be completed during 2004.

The number of recordable injuries was down 5% in 2003. However, the number of lost work days was up slightly. The increase in the number of lost workdays is, in large part, attributable to a change in the reporting requirements that includes calendar days in the calculation. In the past only workdays lost were counted. Safety staff will continue to monitor worksites and staff to insure that injuries and lost time will be minimized.

INFORMATION CENTER

The Department of Public Works Information Center began operations in November 1998. It is a "one-stop-shop" for citizens to request services or to seek information either over the telephone or through the Internet. Customer service representatives take requests for public services, provide information and respond to citizen complaints primarily for sanitation and forestry-related services. In 2002, the Information Center began processing street maintenance service requests and in 2003 street lighting services requests were processed for the first time.

In 2000, DPW developed a web-based application whereby all service requests are entered into a database and printed on forms for submission to the appropriate division. The City Hall operators also utilize this database for service-related calls. During 2001, DPW began sending forestry service requests electronically to the district offices to expedite processing. In summer 2003, the Information Center began sending sanitation service requests electronically

Two of the favorite clowns in the St. Patrick's Day Parade were Yackety and Bitzie (Ron and Debora Sweet). Sweet works in the Infrastructure Services Division and is a veteran clown featured in several of Milwaukee's parades.

Annual St. Patrick's Day Parade in Downtown a Huge Success

The Westown Association and the Shamrock Club of Wisconsin formed a partnership to hold the annual St. Patrick's Day Parade in downtown Milwaukee. The parade held on March 15, featured over 120 units including Irish dance groups, pipe and drum corps, parade grand marshal, Alderman Robert Donovan and special guest, Archbishop Timothy Dolan.

Attendees got in the mood by sporting green derbies, green and white Dr. Seuss hats and green beads. For a day everyone who wanted to be was Irish. The crowds were enthusiastic and well behaved. Most brought their own chairs or found interesting alternatives to bleachers.

Popular units of the parade include the Milwaukee Police Department Marching Band, the O'Usinger's truck, Daley's Debutantes, Trinity Irish Dancers, the Potawatomi Bingo float and, of course, the clowns. Several local politicians were in the parade, Mayor John Norquist, Ald. Marvin Pratt, Alderman Michael Murphy, Alderman Tom Nardelli, Alderman Jim Bohl, accompanied by his daughter, and State Representative Pedro Colon were among some the local politicians who participated. This year's parade had a record crowd of an estimated 50,000 and beautiful weather.

The O'Usinger's Famous Sausage truck was a popular unit. Could it be the little hickory sticks that were thrown to the crowd?

Left to right: Joel Lee, developer of the Cathedral Place building, Beth Nicols, Exec. Director, Milwaukee Downtown BID #21, Mayor John O. Norquist, Nancy O'Keefe, Exec. Director, Historic Third Ward, Mariano Schifalacqua, Commissioner, Department of Public Works, Randy Prasse, Exec. Director, East Town Assn. and Ellen Winters, Exec. Director, Westown Association took part in the press event.

Department of Public Works Assist in Expansion of Parkmilwaukee.com

The Department of Public Works has joined the efforts of other downtown organizations in promoting parking in the downtown area by assisting with the expansion of Parkmilwaukee.com. Parkmilwaukee.com was started by the Westown Association in 2001 and implemented by Onmilwaukee.com to promote parking availability west of the river in downtown Milwaukee. The web site was well received and discussion arose among other downtown organizations about expanding the web site to include all of downtown. Parkmilwaukee.com is the country's first complete interactive downtown parking web site.

Milwaukee Downtown BID #21, the Westown Association, East Town Association, and Historic Third Ward inquired whether the City of Milwaukee would partner with them to expand the site. The Department of Public Works was in the process of updating its parking pages within the DPW web site and promoting the parking web site, www.parking.mpw.net, as an information source to residents and visitors. The idea to collaborate and have another resource for parking information appealed to the Department of Public Works.

"The Department of Public Works is proud to partner with Parkmilwaukee.com. This is a demonstration of how City government can work cooperatively to help solve a perceived problem," Commissioner

to the district offices. Because of the large volume of sanitation-related service requests processed each day, an enhanced application was developed whereby each service request is bar coded to track disposition and response times.

In 2003, the Information Center received 192,609 calls, an increase of 13.9% over 2002. Of the total calls received over 132,700, or 69%, were service requests and approximately 92.5% of these were for sanitation-related services. The average number of calls per day totaled 742 in 2003, as compared to 648 in 2002, an increase of 14.5%. In addition, the Information Center also processes service requests received online at www.dpwworks.mpw.net. In 2003, 5,618 requests were received as compared to 2,453 in 2002, an increase of 129%.

SPECIAL EVENT PERMITS

The Special Events Office issues permits for any activity that occurs in the public right-of-way. Everybody is familiar with the large events, which add vibrancy to the city and occur in the public right-of-way. Events like, Al's Run, Miller Lite Ride for the Arts, Juneteenth Day, NBA Hoop It Up, St. Patrick's Day Parades, Holiday Parade, Bastille Days, Summer Sizzle, RiverSplash and numerous other annual events/festivals are well known. But there are other situations that require the assistance of the office to make their events run smoothly also.

Theatrical productions sometimes have special parking needs for loading and unloading of their equipment. Gala events like to provide valet parking for their patrons. Large conventions need to establish temporary bus shuttle stops to get their attendees around town for various events, and sometimes streets need to be "signed" to accommodate parking needs for very large events in the neighborhoods. Farmers Markets located on the East Side and downtown Milwaukee close streets to provide fresh produce for residents. Film shoots for commercials, still photography and major movie productions, like "Mr. 3000", also request the assistance of the office. All of these activities have economic impacts in the business districts and neighborhoods; they promote the city's cultural diversity and showcase the architecture of the city in some instances.

Public awareness of the services that are provided by the Department of Public Works has risen and more organizations are utilizing them. In the 2003 the number of special events permits issued was 1,059 — 32 more than last year. There were 45 more block parties held in the city. The number of traffic signs installed was 6,607 compared to 5,432 in 2002 and 17,007 meters were hooded, compared to 10,111 in the previous year.

The Harley-Davidson 100th Anniversary celebration helped to raise the number of permits issued. City staff spent hours of preparation for the Harley-Davidson celebration and included spending time with numerous Harley-Davidson staff, consultants and vendors. Arrangements were made for television stations, and photographers, nationally and locally, to capture the excitement and enthusiasm of the thousands who attended block parties and the Parade of Heroes.

The coordination of all Special Event permits, especially the larger ones, include the Milwaukee Police Department's Planning & Operations Division, the Common Council, Milwaukee County Transit System, DPW Traffic and Parking Sections, and the Special Events Office. Aspects involved in the public right-of-way include:

- Coordination of DPW services, such as street construction and maintenance, and Sanitation services, street sweeping after large events;
- Barricading and occupying a city street or sidewalk;
- Traffic and or parking restrictions for an event, including the installation of "Temporary No Parking" signs;
- Hooding of parking meters;
- Providing use of dumpsters, garbage carts and snow fencing; and
- Police escort and traffic control (event security is not provided by Milwaukee Police Department).

Note: Although special event fees are charged for various services, the fees in no way cover the cost of implementing them. Several hours are spent planning events, installing signs, hooding meters, delivering barricades, and maintaining the safety of the events by the Milwaukee Police Department.

TECHNICAL SUPPORT SERVICES

The Technology Support Services Section has responsibilities in three areas of technology for the Department of Public Works and the City: network/desktop computing, application development and Citywide telecommunications infrastructure including the municipal telephone system and the wide area network.

NETWORK/DESKTOP COMPUTING

This team performs software and hardware maintenance, system enhancement and management and resolves system and application problems. In 2003 information system planning and implementation included the upgrade of all Forestry and Sanitation desktops to Windows 2000. Support is provided for numerous applications including the department-wide electronic calendar and the new DPW email system, installation of numerous patches in response to multiple virus attacks and support for new client server applications for work management, public works' permits, DPW invoice/accounts receivable system and Peoplesoft. This section also provides installation, administration, support and maintenance for server hardware and operating systems.

APPLICATION DEVELOPMENT

The application development team works directly with DPW staff responsible for specific operations to custom build functionality into applications to meet or exceed the efficiency and management information needs of the operations staff. With the exception of the database itself, all the software used to develop and support the 30 plus applications was "Open Source" or free. The application servers are low cost but powerful microcomputers that run the Linux operating system that is also "Open Source". In addition to small code revisions and supporting all the users of the 30 plus applications, the application development team developed many new reports, dozens of database field additions, SQL streamlining, and other algorithm enhancements to provide efficiency improvements to the end users.

New email System. In 2003, DPW developed and implemented a new open source Email system. Approximately 1,000 Email users have been defined through the system. This new Email system will save $25,000 to $50,000 annually compared to the maintenance cost of a commercial system and the system is expandable at no additional cost. The Email system is fully customizable, has a sophisticated SPAM filter to block unwanted email, has built in virus protection and it follows open Email standards.

Call Center Application. All Sanitation districts began using the Call Center application in 2003. Previously, the Call Center would print out each request form and send it to the respective district. This process was not only inefficient but also resulted in longer response times and delays in responding to service requests. Now all service requests are immediately available to the districts electronically, reducing response time by at least one day. This has also improved the response time for Sanitation Supervisors for complaint investigations and aldermanic service requests. The requests are color coded on the screen to highlight priorities such as age of the request and Aldermanic Service Requests. Once the requests have been sorted and prioritized, they are given to the supervisors. The supervisors then assign or investigate each request. After the service request has been satisfied, field clerks enter the resolution into the Call Center application, providing staff the ability to respond to return calls by constituents or aldermen. The Call Center application also provides electronic communication of requests for service from one department to another. Street lighting staff will begin using the system in 2004, and street construction staff is expected to utilize the system by the end of the year. The public interface to the Call Center program has been updated to allow for more types of service requests, including street lighting and street maintenance.

Salt Inventory. DPW has converted the City's salt inventory program from Paradox to a web-based Oracle platform that will be available to all eight salt storage sites. The 2003/2004 winter salt transactions and operations have been recorded in the new system.

Apartment Garbage Billing System. DPW has converted the existing Paradox Apartment Garbage tracking and billing system to Oracle and has integrated it with the DPW Invoice/Accounts Receivable system. First quarter bills have been generated and sent under the new billing system.

DPW Commissioner Mariano Schifalacqua speaking at the Parkmilwaukee.com press event about the City's involvement in the expanded web site.

PARK/SMART milwaukee
www.parking.mpw.net

Mariano Schifalacqua said at a press event held November 12. The event was held at the new 940-space Cathedral Place parking garage. He elaborated on the actions the Dept. of Public Works has undertaken to improve parking in downtown Milwaukee. These actions include:

- Instituting the blue "P" parking signs. These signs are designed to assist motorists in finding a place to park. They are located at every location where public parking is available.
- Changed the one-hour meters in downtown to two-hour meters to accommodate businesses and their customers. There are 9,600 public parking spaces.
- Partnering in the new and improved Downtown Parking brochure.
- Providing an online reporting mechanism to report a defective meter.

Schifalacqua also informed the gathering that the City of Milwaukee's parking web site, www.parking.mpw.net is linked to Parkmilwaukee.com. It is designed to answer parking questions like how to get a night time parking permit, what is the winter regulation for your street, or how to get permission for your visitor to park on the street.

Due to the support received and the noted success of the pilot program, Parkmilwaukee.com, with the expertise of Onmilwaukee.com, has expanded to include lots and garages in East Town and the Historic Third Ward. Whether they are first time or repeat visitors, multiple audiences will be able to use Parkmilwaukee.com to plan their trips downtown.

Communications Infrastructure Inventory. DPW continues to develop an application to track the copper telecommunication infrastructure installed, owned and managed by the City. Information about the thousands of conductors (wires) in hundreds of cables is currently maintained in a large manual ledger referred to as the "cable book". This electronic cable book will be an important tool in the relocation of circuits resulting from the reconstruction of the Marquette Interchange. We also plan to use this database to collect information about private entities that lease City conduit. This will facilitate billing of these entities.

Public Way Permits. To reflect City ordinance, public-way permit pricing has significantly changed. The Public Way Permits application now generates permit costs based on the new pricing scheme.

E-Government Applications. In addition to the Governmental Telephone Directory that is printed every four years, DPW developed an electronic telephone book that is available on the Internet (http://phone.mpw.net). The Internet version provides name, telephone number, department and address information. City employees can view the detailed internal information by accessing http://directory.mpw.net. The phone database administrator in each department is responsible for updating the directory to reflect personnel or organizational changes.

TELECOMMUNICATIONS INFRASTRUCTURE

The Technology Support Services Section is responsible for supporting the municipal telephone system. The City's telephone system includes approximately 5,700 telephones for nearly 8,200 employees at over 150 locations, 240 fax machines, 1,319 call box locations, 1,708 voice mail boxes, 750 pagers and 1,300 cell phones. In 2003, the telephone system connected over 13.3 million calls. This included approximately 2.6 million internal calls, 6.6 million incoming calls and 4.1 million outgoing calls. The voice mail system provided about 4.2 million greetings in 2003. In addition, personnel completed approximately 1,200 moves and changes of desktop telephones. The RFP to replace the City's Rolm telephone system was developed in 2003 and will be issued in the spring of 2004. The installation of the new system is expected to be completed by fall 2004.

The Technology Support Services Section is also responsible for planning, designing, engineering, installing, maintaining and supporting the local and wide area network for the Police Department, Fire Department, all major DPW facilities including Water, Health Department, Department of Neighborhood Services and other unique operations. These locations are connected with a variety of communication protocols and speeds including ethernet, fast ethernet, gigabit ethernet, ATM, Sonet, DSL, T-1, and DWDM provided over about 100 miles of fiber optic cable and hundreds of miles of copper cables. This network is now referred to as - COMON - the City of Milwaukee Optical Network and requires DPW to provide rapid response on a 7/24/365 basis because of the critical public safety requirements. In addition, this network is designed for near 100% reliability critical to community safety services.

DPW has provided Internet services for its own needs and other City agencies since 1997. In 2002 DPW switched Internet providers to Time Warner Telecom. In anticipation of public safety requirements for more reliable Internet access, DPW designed and installed a redundant and load balancing Internet connection. The redundant Internet access is provided with a 10Mb connection to WiscNet. The WiscNet connection is physically located at the University of Wisconsin-Milwaukee. UWM is the primary Internet2 presence in the State of Wisconsin. Late in 2003, the Common Council authorized the DPW to extend its optical network to Marquette University. It is anticipated that this connection will enable Marquette to connect to Internet2 through COMON. At the request of the Department of Administration, DPW began providing Internet access to the entire City in 2003.

In 2003 DPW completed two major and several smaller COMON projects. The largest projects included the Fire Department and Water Department networks. The smaller projects included Lake Tower and the first stage of phasing out of the ATM network. For the Fire Department, DPW installed 80 gigabit distribution ports in 10 different sites across the City of Milwaukee. DPW also installed 10/100 Mb ports at each of the 38 engine houses and other MFD facilities for a total of 1,920 ports. The Water Department upgrade was also completed in 2003. DPW installed 10 gigabit distribution ports at 5 locations and a total of 432 10/100 Mb ports at seven Water Department sites.

The Health Department network design was completed in 2003. The Health Department will require 10 new gigabit ports and 768 10/100 Mb ports. Three floors of the Municipal building and five off site locations will be connected over COMON. This network is designed to comply with the very stringent HIPPA requirements.

The Department of Neighborhood Services and the adjacent Sanitation site networks were upgraded at Lake Tower. DPW added 2 gigabit distribution ports and 168 10/100 Mb access ports. Several floors of the Municipal Building were upgraded as we begin the process of phasing out the ATM network. DPW introduced Asynchronous Transfer Mode (ATM) technology to the City in 1996. It was a success for its reliability and usefulness. However, as technology changes and the needs of the City change, the need for greater bandwidth displaced the ATM.

DPW also completed several other technological upgrade projects. New servers were built and application software was installed. Two new firewalls were built and installed. The largest hardware replacement was the new Oracle server. The Oracle server is now on duel 3-megahertz processors with 8 gig of RAM, fully mirrored 292 gigabytes of hard drives space, and a gigabit ethernet uplink. DPW installed and tested a Session Initiation Protocol (SIP) server to evaluate the abilities of voice over IP telephone services in conjunction with other applications. SIP is an application-layer control protocol that can establish, modify, and terminate multimedia sessions (conferences) such as Internet telephony calls. DPW also deployed a video to the IP application server which provides the capability to view CNN, The Weather channel, and Channel 25 directly from any desktop within the City of Milwaukee network.

PARKING FUND

The Parking Fund is an enterprise fund administered by the Department of Public Works. It receives revenues from various parking activities, including parking enforcement, which finances the City's on and off-street parking operations.

The Parking Fund's activities include owning and operating four City-owned parking structures that provide 4,454 parking spaces. The City leases a fifth structure to a private company. In addition, DPW manages 51 City-owned surface parking lots. Revenues received in 2003 from parking structures and lots totaled nearly $6.9 million.

Five staff manages 6,535 parking meters citywide, 6,185 on-street and 350 off-street meters. In 2003, over $4.0 million was generated in meter revenue, an increase of $126,000 from 2002. This increase reflects greater compliance with parking regulations. In addition, in 2003, all the parking meters were renumbered to provide better revenue control and to accommodate changes in installation. Parking meter staff is also responsible for hooding, installing and removing meters. This activity generated nearly $135,700 in 2003.

DPW also administers the overnight parking permit program. Permits are sold at all Police District Stations, three Violations Bureau locations and the City Tow Lot. In 2003, 174,763 night parking quarterly and annual permits were sold generating over $2.7 million, an increase of $300,000 from 2002. This increase reflects greater compliance with night parking regulations.

The City's towing program is also managed through the Parking Fund. DPW is responsible for managing the City's Tow Lot, two towing contracts and the vehicle recycling contract. In 2003, 29,746 vehicles were towed. Of this amount, 15,916 vehicles were abandoned and 13,830 vehicles were illegally parked. In addition, of the vehicles towed 58% (similar to 2002) were unclaimed causing the City to dispose of the vehicles. Of the vehicles disposed, the City recycled 69% and sold 31%. Revenue generated from towing, storage and disposal of vehicles totaled over $3.7 million in 2003.

In spring 2003 Parking enforcement operations along with the Parking Information Desk were moved from the Central Garage to a new location at 123 N. 25th Street in the Menomonee Valley. Parking enforcement operations includes 64 parking checkers. The goal of parking enforcement is to deploy parking checkers to provide the most comprehensive and consistent parking enforcement Citywide. At the 2003 authorized level, every City street received parking enforcement approximately once every 18 days. In addition, parking checkers are deployed 24/7/365 and are assigned to special patrols, including abandoned vehicles, citizen complaints and Aldermanic Service Requests. In 2003, parking checkers issued 833,950 parking citations, a decrease of 4.4% from 2002. The decrease in issuance is reflective of greater compliance with parking regulations Citywide.

Parking Information Desk operates 24/7/365 and includes 21 communication assistants. Parking Information Desk personnel receive parking complaints, process night parking permissions, provide general parking information and dispatch tow operators. In 2003, the Parking Information Desk received 197,444 calls. Of these calls 60,306 were parking complaints from citizens. In addition, the Parking Information Desk processed 137,208 night parking permissions, an increase of over 7,000 calls, or 5.4%, from 2002. In addition, DPW developed an online night parking permissions request form to make night parking permissions even more convenient for the public. This form can be accessed through www.parking.mpw.net. In 2003, 6,478 permissions were requested online. Further, Parking Information Desk personnel also dispatched 34,596 tows.

PARKING CITATION PROCESSING

The Department of Public Works manages the processing and collection of parking citations with the help of contracted services. There are several ways citizens can pay parking citations. They may use the pay-by-mail service, of which 36% utilize this service, visit the three Violations Bureau locations of which 45% utilize this service, or utilize drop boxes which are located in each of the seven Police District Stations, the Avenues West Police Substation and City Hall. In 2002, the City offered two more convenient ways to pay parking citations, which are available to the public 24/7. Citizens can pay by phone through the Interactive Voice Response (IVR) system by calling the Violations Bureau at 344-0840 at any time. Citizens can also check any outstanding balances due by using this system. In addition, citizens can pay parking citations online by accessing www.parking.mpw.net. Both the IVR and the online payment options charge a $1 transaction fee. In 2003, 13% of the parking violators chose to utilize these services to pay their parking citations.

The automated citation processing/cash management system tracks citation issuance and payments and has improved the City's ability to pursue overdue and delinquent citations and to better manage City parking resources. In fall 2002, the City began utilizing the Tax Refund Intercept Program implemented by the State of Wisconsin Department of Revenue to intercept state income tax returns for those individuals that had over $300 in outstanding parking citations. This included 20,148 violators and $10.4 million in outstanding parking citations. By fall 2003, individuals with outstanding balances over $100 were certified with the State. This included 49,525 violators and $8.9 million. In 2003, over $1.2 million in outstanding parking citations was collected through this program.

The Violations Bureau processed over 1 million parking citations in 2003. The amount of revenue generated totaled over $20.1 million. Of that amount, nearly $7.1 million was collected from past due violations, an increase of $600,000 from 2002. This amount is reflective of the Tax Refund Intercept Program. It appears that the clearance rate of citations issued in 2003 is expected to resemble the clearance rates of prior years of nearly 80%.

PARKING CITATION ADJUDICATION

In 2003, the Department of Public Works, City Attorney's Office and the Municipal Court worked cooperatively to develop and implement a number of strategies to deal with the large number of parking scofflaws. These strategies include the Municipal Court obtaining jurisdiction for adjudication and enhanced collection efforts of outstanding parking citations. One of these strategies include utilizing the Notice of Appearance form to address parking scofflaws who schedule an appointment with the Citation Review Manager and miss the appointment. Over 50% of parking scofflaws who schedule an appointment miss the first appointment. This form will include a Municipal Court date and a summary of all outstanding parking citations. Failure to appear in Court will result in a default judgment and may include a suspension of vehicle registration or a lien on assets. This strategy was implemented in fall 2003. By the end of 2003, 19 notices had been issued.

Another strategy implemented in late 2003 included the utilization of the Summons and Complaint form. The purpose

of this form is to address parking scofflaws whose vehicles have been towed by the City and retrieved by the owners. When the scofflaw retrieves his/her vehicle at the Tow Lot and there are eligible outstanding parking citations, a summons and complaint will be personally served to the parking scofflaw. This form will include a Municipal Court date and a summary of all outstanding parking citations. Failure to appear in Court will result in a default judgment and may include a suspension of vehicle registration or a lien on assets. This strategy was implemented on December 1, 2003. By the end of the month, 148 summons had been issued.

In addition, the City Attorney began to issuing summons and complaints to major parking scofflaws who have 40 or more outstanding parking citations. Of the 66 eligible violators, approximately 50% have been served.

CITY TOW LOT

In 2003, the Department of Public Works negotiated a new contract with Miller Compressing for processing scrap vehicles. Previously an unclaimed vehicle that was to be scrapped was towed to Miller, fluids were removed, and the vehicle was crushed. The City received revenue from the scrap value of the vehicle, but had to pay for the tow and fluid removal. Under the new agreement, Miller leases a portion of the City Tow Lot (for $10,000 a year) to process vehicles. Miller is responsible for removing fluids from the vehicles and removing the vehicles to their property in the Menomonee Valley. Consequently, the City saves towing costs. In addition, Miller Compressing pays the City an additional $4 per vehicle over the base price adjusted quarterly based on a scrap index. Under this agreement, it is estimated that City will save $200,000 per year over a 10-year period.

NEW TECHNOLOGY

In December 2003, the Department of Public Works entered into an agreement with the City's citation processing contractor to purchase three electronic kiosks and for software development. The kiosks will disburse night parking permits and receive payments for parking citations. The kiosks will take cash, check and credit cards, will be available in both English and Spanish, and will be accessible 24/7. Initially, the kiosks will be installed in Police Districts 2, 5 and 6. Once fully implemented it is the department's intent to install the kiosks in each police district station as well as other selected locations. It is also the department's intent to utilize the kiosks for the payment of other bills.

In spring 2004 multi-space parking meters will be installed on a pilot basis in the Cathedral Square area. The Department of Public Works has negotiated a contract with a vendor to install the parking meters on a test basis at no cost to the City. The meters will take coins as well as credit cards. The pilot will be for 3 months. At the end of the pilot, an analysis will be conducted to determine whether the meters are cost effective.

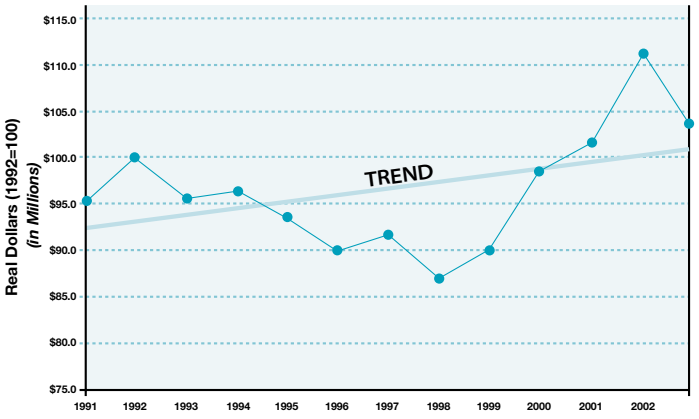
In 2003/04, Parking Operations prepared a Request for Proposal to be issued in the spring of 2004 for the replacement of the revenue and access control system in the City-owned parking structures with state-of-the-art equipment that includes pay-on-foot technology and exit cashiering. This new equipment will provide the ability to control, monitor and coordinate revenue and vehicle control activities at the parking structures and the production of all required transaction records and audit data. In addition, this equipment will have the capability of accepting credit and debit cards and stored value cards for payment of parking. The 2003 capital budget provided $969,000 for this purpose.

Department of Public Works: 2002–03 Budget Expenditure Summary

	2001 ACTUAL EXPENDITURES	2002 ADOPTED BUDGET	2003 ADOPTED BUDGET	CHANGE 2003 ADOPTED VERSUS 2002 ADOPTED
PERSONNEL*				
FTEs – Operations and Maintenance	1,903.13	1,879.19	1,883.87	4.68
FTEs – Other	493.03	496.24	450.78	–45.46
Total Positions Authorized	4,161.00	4,139.00	4,063.00	–76
DLH – Operations and Maintenance	3,384,913.00	3,337,632.00	3,390,906.00	53,274
DLH – Other Funds	944,252.00	893,574.00	811,404.00	–82,170
EXPENDITURES – GENERAL CITY PURPOSES				
Administrative Services	$4,485,772.00	$4,976,350.00	$4,856,904.00	$–119,446
Buildings and Fleet Services	35,378,500.00	0.00	0.00	0
Forestry	10,961,183.00	0.00	0.00	0
Infrastructure Services	22,369,018.00	22,994,302.00	23,748,383.00	754,081
Operations	0.00	81,227,156.00	81,347,580.00	120,424
Subtotal – General City Purposes	**$73,194,473.00**	**$109,197,808.00**	**$109,952,867.00**	**$755,059**
WATER WORKS (Public Utility)				
Operating Budget	$55,207,989.00	$60,289,607.00	$60,918,579.00	$628,972
Capital Improvements	8,631,613.00	15,050,000.00	14,900,000.00	–150,000
Total Water Works**	**$63,839,602.00**	**$75,339,607.00**	**$75,818,579.00**	**$478,972**
PARKING BUDGET				
Operating and Maintenance Budget	$23,621,635.00	$25,230,266.00	$27,426,797.00	$2,196,531
Capital Improvements	2,132,592.00	822,000.00	1,661,000.00	839,000
Addition to Parking Reserves	0.00	903,832.00	0.00	–903,832
Transfer to the General Fund	15,041,085.00	8,250,000.00	8,300,000.00	50,000
Capital Improvements to be Financed from Permanent Improvement Reserve Fund – Parking	0.00	5,000,000.00	5,000,000.00	0
Total Parking Budget	**$40,795,312.00**	**$40,206,098.00**	**$42,387,797.00**	**$2,181,699**
SOLID WASTE FUND				
Operating and Maintenance Budget	$34,662,453.00	$0.00	$0.00	$0
Total Solid Waste Fund Budget	**$34,662,453.00**	**$0.00**	**$0.00**	**$0**
SEWER MAINTENANCE FUND				
Operating and Maintenance Budget	$14,145,343.00	$25,813,146.00	$26,548,059.00	$734,913
Capital Improvements	$10,331,571.00	$17,400,000.00	$19,700,000.00	$2,300,000
Total Sewer Fund Budget	**$24,476,914.00**	**$43,213,146.00**	**$46,248,059.00**	**$3,034,913**
Grand Total – Department of Public Works	**$236,968,754.00**	**$267,956,659.00**	**$274,407,302.00**	**$6,450,643**

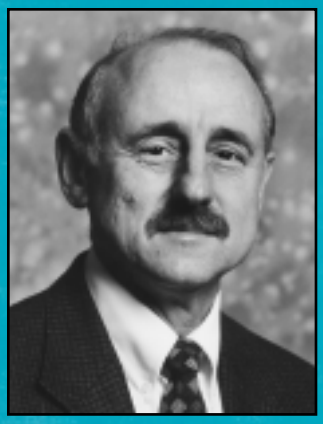
**Personnel totals reflect Operating Divisions, Water Works, Sewer Maintenance Fund, Solid Waste Fund and Parking Fund.*
***Does not include retained earnings.*

Department of Public Works Operating Budgets



Operations Division

Zeidler Municipal Building
841 North Broadway
Room 516
[414] 286-8333



James P. Purko
Operations Division Director

Venu Gupta
Building & Fleet Superintendent

Preston Cole
Environmental Services Superintendent

The Operations Division is responsible for tree and landscape design and maintenance, equipment dispatch, solid waste collection and disposal, recycling and waste reduction, maintenance and support services to City buildings and equipment, and snow and ice control.

The Operations Division provides services that impact residents on a daily basis. Operations Division, in providing these services, must adapt to changing equipment technology, needs of citizens, and weather impacts. To assist in meeting these challenges, the Operations Division continuously reviews and revises its procedures and organizational structure to gain the necessary efficiencies that allow it to continue to provide high service levels.

In 2002, DPW addressed some of these challenges by combining Forestry, Sanitation, and Buildings & Fleet Divisions into the Operations Division. Through improved coordination of personnel, administration, and equipment, creation of the Operations Division has improved services delivery to Milwaukee residents. For example, in the Sanitation and Fleet Operations Sections, five distinct driving titles were combined into the single title of Operations Driver/Worker. The consolidation of these titles into one classification enables DPW to utilize existing staff more effectively. In 2003, the flexibility afforded by the Operations Driver/Worker title in combination with more efficient vacation scheduling allows for the reduction of 14 Operations Driver/Worker positions through staff attribution.

In 2003, The Operations Division continued restructuring its management personnel. This allowed for the elimination of one Operations Manager position, one Administration and Projects Manager position, one Shop Supervisor position, one Building Services manager and three Urban Forestry positions. Also the Sanitation Superintendent position was eliminated after the first quarter of 2003 due to retirement. The position of Environmental Services Superintendent was created to supervise the Forestry and Sanitation Sections. These management changes resulted in a streamline organizational structure, maintained service delivery and resulted in significant ongoing annual savings.

Innovative, Cutting Edge, and Lean Processes are just a few "buzz" words one can use to describe this eclectic group. From changing tires and oil to the rapidly changing digital and "wireless" global positioning and WiFi technologies, the dedicated staff of three DPW Sections that comprise the City's Building and Fleet Services continually provides efficient and timely repairs and designs to our internal and external customers. Led by Mr. Venu J. Gupta, Superintendent and encouraged support by the management team, employee's have developed "thinking out of the box" work philosophy that has formulated ideas for improving work productivity, enhancing partnerships and generated successful consolidations.

For Buildings and Fleet Services, the key enabler to achieve the objective of "doing more with less" and to "do it faster and better" has been to embrace the **LEAN PROCESS** thinking as practiced by such companies as Toyota. Lean principles are often thought of as related to manufacturing. The truth of the matter is that every activity is part of a process, and Lean teaches us that any process can be improved using lean thinking.

The basic concept to be recognized is to put forth all efforts to attain cost-effective service is " reduction of the cost of service through the elimination of waste". This involves developing a system that will thoroughly eliminate waste by assuming that anything other than the minimum amount of equipment, materials, parts, and working time which are absolutely essential to the service delivery are merely surplus or waste that only raises the cost.

Major 2003 Initiatives

Initiatives were met with the consolidation of two municipal garages in the Fleet Services area and the merger of the Facilities Management and Design and Construction Sections in the Facilities Services area.

The first major initiative was undertaken to develop a plan and remodel the outdated municipal garage facilities and to address the facilities deficiencies and to meet current codes and standards. In 2003, the program incorporated the consolidation of the Southwest Shop activities in with the Central Repair Garage. As part of this consolidation, tire shop was moved to a leased facility from Milwaukee Metro Sewage District as an example of an inter-governmental co-operative effort. Parking Enforcement and the Tow Desk operations were also relocated to this newly leased facility located at 123 N. 25th Street. The consolidation met its objective to reduce certain duplication of activities, achieved operational efficiencies, realized immediate savings in staffing and established groundwork for future savings in management staff.

The second major initiative was the merger of two distinct sections into the newly created Facilities Development & Management Section. The combining of the Design & Construction Section with the Facilities Management Section into the Facilities Development and Management Section in 2003 has proven to be an effective change in the operations of these two sections. Prior to 2003, these two units worked closely together as a design-build team for the past 15 years on in-house remodeling and renovations projects. Efficiencies have been realized by sharing of more responsibilities and workloads among the management team. Each manager is becoming more familiar with each other's daily activities, cyclical reports, and overall operations. The Operations Division has benefited by having a more seamless organization on the facilities side. Due to the increasingly greater demand and work load on the entire staff that is responsible for Facilities, the creation of the Facilities Development and Management Section has benefited the Department of Public Works

Facilities Development & Management Section

Buildings & Fleet Services — Facilities Development & Management (F.D.M.) Section provides construction and maintenance services to all city facilities, excluding those of the Milwaukee Public Library. In 2003, $11.3 million in operating funding and $22.0 million in capital funding were budgeted for facilities maintenance and improvements.

The section is responsible for providing facilities that are functional, comfortable, clean, in good condition, and provide a reasonable level of physical security. Additionally, the Section, through the efforts of its highly dedicated staff, aims to maintain space that is pleasing and efficient to use. This sections has responsibilities which covers 220 city owned buildings with over 6.4 million square feet of space and a replacement value exceeding $1 billion. Of these, the Section is directly responsible for the management, repairs, and maintenance of 160 Department Public Works facilities with over two million square feet of space. It also provides

Buildings and Fleet Services

Zeidler Municipal Building
841 North Broadway
Room 602
[414] 286-3401

Venu J. Gupta
Director

Bernard L. Mielcarek
Design and Construction Manager

Gary Kulwicki
Facilities Manager

Gregory Jagmin
Fleet Services Manager

Mariano Schifalacqua, Commissioner, DPW, Tim Ringle, Telecommunications Analyst Associate, James Purko, Operations Division Director, and Venu Gupta, Buildings & Fleet Division Director. Tim Ringle is also a student at MSOE and assisted in the design of the website which allows students and others check the output of the microturbine at any time of day or night.

City of Milwaukee, We Energies, Focus on Energy and MSOE Join for Efficient-Building Breakthrough

The City of Milwaukee, We Energies and Focus on Energy celebrated their joint efforts in providing an energy efficient microturbine for the Anderson Lake Tower Municipal Building with an official "switch flipping" ceremony on May 27th at 4001 South 6th Street. Remarks were delivered by: Mayor John O. Norquist, Commissioner Mariano Schifalacqua, Mr. Charles Cole, Senior Vice-President of Distribution Operations, We Energies, Mr. Peter Bock, Division Administrator, Department of Energy, State of Wisconsin, Dr. Hermann Viets, President, Milwaukee School of Engineering and students from MSOE.

In January 2003, a 60kW microturbine (electrical generator) was installed in the renovated historic building that serves as home to the City of Milwaukee Department of Neighborhood Services. The program was funded with two grants of $50,000, one from We Energies and one from Focus on Energy and an additional $50,000 was provided by the City of Milwaukee. The students of the Milwaukee School of Engineering built the Internet website, which monitors the microturbine. What does each of these groups get from participating in this unique collaboration?

— Continued on adjacent page —

project management, consulting services, inspections, and evaluations for the repair, maintenance, and renovation of the City's building infrastructure. The staff of skilled craftsmen, mechanics, and professionals provides these services to City agencies and departments' offices, field headquarters, shops, and storage facilities.

Facilities are getting more sophisticated with increased demands by their users for telecommunications, energy management, a quiet, comfortable environment, and a very high level of indoor air quality. Facilities Development & Management, is taking an active role in strategically meeting the needs of staff and public for the use of its' buildings.

Meeting Challenges — The reduction of 23 positions in Facilities Development & Management in 2003 budget from the previous 2002 budget has created both challenges and efficiencies in the section. Reductions were due to efficiencies created by newer equipment, residual benefits of computerized maintenance programming and the benefits of SCADA and other digital control technologies. Reductions in staff have required F.D.M. to place a stronger emphasis on training and cross training among the staff for the sharing of duties. The elimination of 2 Inventory Assistants positions has been challenging, however the lack of personnel has created the need for our section to look to other Divisions in DPW for back up. This has generated the pooling of resources, which has been the catalyst for the combing of like functions for all of DPW inventory staff into one unit and incorporating the transfer of Inventory Assistant IV positions to Infrastructure in 2004.

The elimination of DPW's custodial responsibilities at the Safety Academy has played out very well. The elimination of the Building Services Supervisor and 7 Custodial positions has not affected our capabilities to maintain the City Hall Complex.

The Architectural Design Unit

The Architectural Design Unit's team of professionals leads DPW's development of new buildings and additions/alterations to existing facilities for the City. They are involved from concept through construction, creating the design, producing the contract drawings and specifications, and administering construction, in addition to overseeing architectural consulting firms on projects. They also provide the architectural technical support for the development of budgets and facility utilization studies, and assist in operations and maintenance activities.

The architectural team's approach is to work collaboratively with clients to meet their goals and needs. In being proactive and cost conscious in developing design solutions, this team creates functional and efficient workplaces, and provides better working environments with the installation of energy efficient building operating systems and in meeting life/safety building code requirements.

Police Radio Repair Shop Addition and Remodeling
4715 West Vliet Street

Housing the Police Department-Communications Maintenance Division's radio installation and repair shop, this 1967 north side garage had seen no major remodeling from the time it had been built. Due to lack of available space, radio repair shop personnel were located in the adjacent old 3rd District Police Station. To meet the needs of this department, a new, two-story addition was designed on the west side of the small, sloped site to provide office space for staff, parts storage, new ADA compliant toilet and locker rooms, and space for a backup operations area for 911 emergency calls. The garage space was then expanded, incorporating the relocated offices, locker rooms and toilet room space, allowing for additional vehicle maintenance stations and storage. The three existing garage doors, which were too small to allow for easy maneuverability of large vehicles into the garage, were removed, and two large doors were added. Existing windows were removed and replaced with glass block.

The design of the addition and remodeling is in keeping with the original exterior building design. Mixed color brick was used to match the existing brick in color and pattern. Included in this project were new heating, ventilating and air conditioning (HVAC), plumbing, telephone, data, speaker, electrical, and life safety systems.

Buildings and Fleet (B&F) staff provided the architectural, site and landscape design, and inspection services. DPW Administration provided communications services. Structural, mechanical and electrical power distribution design were provided by a consultant, with coordination and oversight by B&F. The project was bid out for general construction, and was

completed in January 2003. In addition, construction of the mezzanine portion of the project, the carpentry and painting, communication and electrical was done by facilities trades.

Department of Neighborhood Services Office Remodeling
Zeidler Municipal Building 10th Floor East Side

From 2002 and into 2003, the 10th floor of the Zeidler Municipal Building was the focus of remodeling, with the objective of accommodating Department of Neighborhood Services' (DNS) Construction and Commercial Inspection Sections. Office alterations included the removal of existing walls and partitions, and construction of new private and general office spaces, reception area, conference room and break room. The floor now features systems furnishings, which match the furnishings in the 1st Floor DNS area, new carpeting, lighting, telephone, data, electrical, sprinkler system, smoke detection and life safety systems. B&F staff provided the architectural, HVAC and plumbing design, and inspection services. Communications design services were provided by DPW Administration. Lighting and power distribution design and sprinkler, smoke detection and life safety design were provided by a consultant, with coordination and oversight by B&F design staff. Construction by the B&F trades group included carpentry and painting, and installation of communications and electrical services. Private contractors installed the carpeting, sprinkler, life safety, plumbing and systems furnishings.

Fire and Police Commission Office Relocation/Remodeling
City Hall 7th Floor North Side

During the summer of 2003, the 7th floor of City Hall was remodeled to provide office space for the Fire and Police Commission, which was housed on the 1st floor of the 809 Broadway Building. This work included building new offices, painting, reconfiguring systems furnishings, and electrical and communications work. The project was overseen by the architectural unit, and designed by an outside consultant. Carpentry, painting, electrical and communications work was completed by the B&F trades group. A contractor reconfigured the systems furnishings.

Wisconsin Avenue Civil War Monument Restoration

Looking West

Focus on Energy:

It's an opportunity to demonstrate how microturbine technology can be applied to lower the cost of energy use – using about 40 percent less energy than that of a conventional generator.

We Energies:

The president and CEO of We Generations, Richard R. Grigg has stated, "The information, education and demonstration of energy efficiency obtained in this microturbine project will provide valuable inputs in the development of distributed generation".

Department of Public Works' Buildings & Fleet Division:

Besides shaving off expensive "peak" energy use periods, the microturbine project fits into the City's overall load management strategy and increases staff's knowledge of energy management.

This new microturbine (back-up generator), at the City of Milwaukee Anderson Lake Tower, will help supplement energy demand during peak periods by using natural gas and capturing heat to reduce energy bills. The project will provide a learning experience for engineering students, and serves as a model for buildings nationally.

The staff of the Buildings and Fleet Division, who played a major role in completing this innovative project, include: Venu Gupta, Buildings and Fleet Director, Gary Kulwicki, Facilities Manager, Joseph Jacobsen, Management Facilities Engineer, Andrew Hilgendorf, Electrical Service Supervisor and Wayne Ray, Electrical Mechanic. Thanks to this team the City of Milwaukee will save thousands of dollars in energy expenses!

Mariano Schifalacqua, Commissioner of DPW acts as master of ceremonies for the "flipping of the switch" for the Microturbine Pilot Project. Behind him from left to right is Charles Cole, Sr. Vice-President of Distribution Operations, Peter Bock, Division Administrator, Department of Energy, State of Wisconsin, Mayor John O.Norquist, and Dr. Hermann Viets, Milwaukee School of Engineering. The event was well covered by the television media.

For many years we've all probably driven past the Civil War Monument on 10th and Wisconsin and saw it, but probably never really paid that much attention to it. The bronze statue known as *The Victorious Charge, which depicts Wisconsin Civil War,* soldiers in combat graced our city for decades eventually fell to the ravages of time and weather. In the summer of 2003 the statue was completely restored to its former glory by CSOS, Inc. or "Conservation of Sculpture and Objects Studio, Inc." of Chicago and was supervised by Buildings and Fleet Services — the legal owner and caretaker of our city monuments. The cost for restoration of this historical treasure was over $50,000 and was funded by grants and donations from private agencies. The statue's missing pieces had to be replaced by work which took an entire summer and included bronze foundry casting techniques used from the era of classical sculpture and the surfaces of the statue were chemically analyzed and refinished with specially formulated chemicals. All this effort insured that soldiers on *The Victorious Charge* will grace our downtown's main street for generations yet to come.

The Mechanical Design Unit

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 existing and new City owned buildings. The unit manages the design and construction of building mechanical systems projects including project scheduling, budget control, compliance with design standards, resolution of on-site construction problems and overall project quality control, in coordination with user agencies. We provide engineering services to enhance the condition and prolong the useful life of public facilities.

Central Garage Vehicle Wash
2312 West Canal Street

James Purko, Director of Operations, cuts the ribbon to signal the opening the retrofitted Central Garage Vehicle Wash.

Fred Gunther, Vehicle Equipment Repairs Manager and Venu Gupta, Director of Buildings and Fleet Services, explains the impact the retrofitted car wash will have on the Department's equipment. Gupta recognized the various sections of Buildings and Fleet that contributed to the success of the project.

Phase 1 of the Central Garage Vehicle Wash Retrofit was completed in 2003. This facility has been retrofitted with a modern wash system, to replace old poorly operating equipment, yet maintaining some components that could be reused. The components of the old system that were reused are the trench drain, tire guides, water heater and main plumbing piping. Newer spinner technology has been introduced in the retrofit. Before this work was done vehicles had to pass through the old system several times to get a heavily soiled vehicle reasonably clean. Many vehicles were washed by hand due to the ineffectiveness of the wash. Salt truck undercarriages were washed by hand before the retrofit to ensure that the entire salt residue was removed to avoid premature rusting. The new system has an undercarriage wash to replace the manual washing procedure.

The vehicle wash facility is a drive through high-pressure system designed to wash trucks and other vehicles, which are small enough to fit between the wash bay, guide rails and arches. The most important element of a drive through wash is to maintain a consistent low speed from start to finish. An optimal travel speed through the system is approximately 1-2 feet per second (approximately 1 mile per hour). The wash system equipment includes a chemical application arch and high-pressure spinners with intensified rear wash. When the moving vehicle makes contact with the fiber glass wands connected to the limit switches the corresponding cycles of the wash are initiated.

The chemical arch applies water injected with a cleaning agent to all exposed surfaces of the vehicle at approximately 50-PSI (pounds per square inch). The chemical arch spray nozzles are equipped with built in check valves which keep the arch primed at all times. This allows the sprays to open quickly when the vehicle sensor is activated. The rear chemical spray is applied only to the rear of vehicles that are large enough (such as garbage packers or salt trucks) to activate the rear chemical sensor via the rear spray bar. The chemical in the rear wash arch is usually designed for a higher volume and concentration per nozzle to have more cleaning power on the rear of the vehicle, which usually has the heaviest dirt build up.

The high-pressure (approximately 320 PSI) spinner arch uses water to remove the dirt, which the cleaning agent had lifted in the previous cycle. The high pressure is also directed at the rear of the vehicle via a pneumatic three-way valve and the undercarriage of the vehicle via spinners located in the floor of the wash bay. The combination of the spinner arch limit switches and photo electric sensor are used to determine the location of the rear of large vehicles and redirect the high pressure to the back of the vehicle, via intensified rear wash arch at the correct instant. The high-pressure pump draws water from a 500-gallon holding tank.

The holding tank is equipped with upper and lower level float switches to control tank filling in the case of the upper level float and emergency system shutdown in the case of the lower level float. The wash control panel houses all the wash controls including the programmable controller, motor starters and user interface (touch screen display).

As a result of the retrofit, the City saves many labor hours by not having to wash by hand or drive through the automated system several times. Everyone likes to work in comfortable attractive surroundings and this should help for those who work out of City vehicles to have a cleaner, more attractive working environment. Phase 2 is expected to be complete the project in November 2004 with the addition of a dry-cell building the utilizing a series high velocity/ high volume fans.

Central Repair Garage Vehicle Wash Facility

Central Garage Body Shop
2142 West Canal Street

A body shop was designed in the area formerly used by the Tire shop at the Central Garage. This area was designed to accept most of the fleet vehicles of the City of Milwaukee, DPW. Those vehicles with heights over 13 feet can be addressed within the adjacent high-bay truck repair area. The Body Shop includes 5 to 6 workstations, and a ventilated double-bay paint prep booth. The vehicle preparation booth was designed and installed to provide high-quality conditions for the preparation and painting of vehicles and parts. In addition to the existing exterior overhead door, another overhead door was added to facilitate access to work stations. Existing utilities were moved or raised to increase the clear height of the space. Additional heating and ventilation capacity was added to accommodate the prep booth and work stations.

Central Repair Garage Body Shop - Paint Prep Booth

The Milwaukee Police Department's special equipment truck was the first to go through the newly, retrofitted Central Garage Vehicle Wash.

This article was written by Daniel Pitts, Mechanical Engineer II, Buildings & Fleet Services, who served as the project manager on the retrofitting of the Central Garage Vehicle Wash.

A group of Buildings & Fleet employees who played a part in retrofitting the Central Garage Wash watched as it was re-opened.

Retrofitting the Central Garage Vehicle Wash

The Central Garage Vehicle Wash, 2312 W. Canal St., has been retrofitted with a modern wash system to replace old poorly operating equipment, yet maintaining some components that could be reused. The components of the old system that were reused are the trench drain, tire guides, water heater and main plumbing piping. Newer spinner technology has been introduced in the retrofit. Before this work was done, vehicles had to pass through the old system several times to get a heavily soiled vehicle reasonably clean. Many vehicles were washed by hand due to the ineffectiveness of the wash. Salt truck undercarriages were washed by hand before the retrofit to ensure that all the salt residue was removed to avoid premature rusting. The new system has an undercarriage wash to replace the manual washing procedure.

The vehicle wash facility is a drive through high-pressure system designed to wash trucks and other vehicles, which are small enough to fit between the wash bay guide rails and arches. The most important element of a drive through wash is to maintain a consistent low speed from start to finish. An optimal travel speed through the system is approximately 1-2 ft./sec. (approximately 1 mile/hr.).

The wash system equipment includes a chemical application arch and high-pressure spinners with intensified rear wash. When the moving vehicle makes contact with the fiber glass wands connected to the limit switches, the corresponding cycles of the wash are initiated.

The chemical arch applies water injected with a cleaning agent to all exposed surfaces of the vehicle at approximately 50-PSI (lbs/sq. in.). The chemical arch spray nozzles are

Central Repair Garage Body Shop

Paint Prep Booth

Central Repair Garage Paint Spray Booth
2214 West Canal Street

Staff engineers have designed and installed a new paint spray booth for the purposes of painting City vehicles. The paint spray booth is located in the Central Repair Garage north of the Body Shop. Additionally, Paint Storage/Mixing was constructed adjacent to the Paint Spray Booth for the proper storage and mixing of paints.

Using a paint spray booth can help save money and provide better paint jobs while protecting the environment. Spray booths direct harmful particles up the stack and away from employees, neighboring buildings, and people. Paint spray booths also provide a well-lighted area for painting.

Paint spray booths help save money in many ways:

1. *Better Paint Jobs* — A spray booth allows painting in a dirt-free environment. By reducing dirt, a better paint job is provided.
2. *Paint Savings* — Spray booths help minimize drafts, which lessens overspray and keeps more paint on the vehicles. Using less paint and solvent saves money.
3. *Disposal-Fee Savings* — Since less paint and solvent is used with a spray booth, money may be saved on disposal fees by lowering the amount of waste generated.

Parking Enforcement and Tire Shop (123 Building)
123 North 25th Street

The Mechanical section had designed and installed heating, ventilating, air conditioning, plumbing, compressed air, and fire sprinkler revisions as well as updated the underground fuel storage system and fuel dispensing system at the new Parking Enforcement and Tire Shop. These systems were necessary to meet the special needs of these two groups in a former Milwaukee Metropolitan Sewerage District garage.

Tire Shop — Tire Balancing

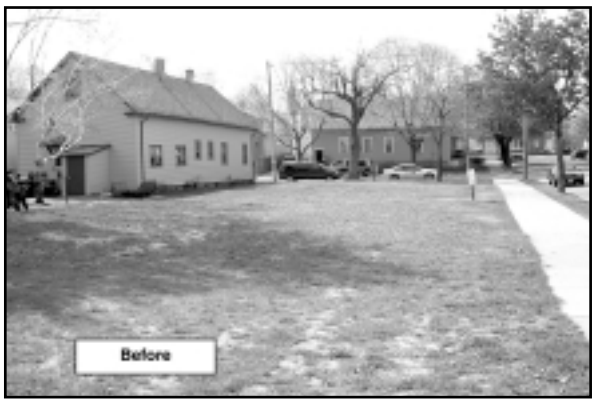
The Recreational Facilities Design Unit

The Recreational Facilities Design Unit has the responsibility for the construction and renovation of the city's eighty-three recreation facilities totaling over 369 acres. They are involved from concept through construction, creating the design, producing the contract drawings and specifications, and administering construction contracts. They also are involved in the design and contracting of paving projects for other city departments.

A number of renovation projects were completed at seven sites in this year's recreational facilities construction program. Projects included reconstruction of two children's play areas, construction of one new children's play area, reconstruction of eight tennis courts at Hamilton/Bell Playfield and renovation of the wading pool filtration systems at Enderis & Burbank Playfields. All of the children's play areas constructed or reconstructed during the past ten years are now handicapped accessible.

The new children's play area that was constructed is located at South Comstock Avenue & West Arrow Street. The neighborhood had indicated the need for a play area to the alderman who worked with them in identifying possible locations. The site chosen was vacant land owned by the Milwaukee Housing Authority that was originally planned as a scattered housing site. The new play area was officially dedicated as "Parque Los Ninos" or "Children's Park" with a neighborhood event held in October.

Working with the Milwaukee Public Schools, Facilities & Maintenance Services Division, the first two of six wading pool filtration systems under a grant from the National Park Service, Urban Park and Recreation Recovery Program, were completed in time for the summer recreation program. MPS had expressed an interest to the city in doing the renovation work with their in-house staff. The designs were completed by the city's Recreational Facilities unit while MPS proceeded with the necessary demolition work. Working with MPS enabled both projects to be completed in less time than would be required by contracting. The remaining four projects will be completed in June of 2004 in time for the start of the wading pool season.



Arrow & Comstock Play Area

Communications Unit.

The Communications Unit headed by an Electrical Engineer, consists of journeyman electrical mechanics and certified technicians, and provides and maintains the City's fiber optic backbone for data and telephone transmission. Our staff is responsible for the maintenance of the City's telephone system, street lighting control circuitry, various alarm systems, public address systems, Fire Department Computer Aided Dispatch, the Community Safety Wide Area Network, and Police call boxes. This cable network exceeds several thousand miles of cable in a 546-mile labyrinth of underground conduct system. This unit is also involved in the remodeling and construction of City facilities where we provide Cat 3/5e/6 wiring and fiber connectivity. Communications continues to be in the forefront of the fiber optic and local area network hub technologies linking DPW and other City Departments to each other.

In 2003, the Communications Unit was responsible for wiring the City Fire Department's thirty plus Engine Houses enabling the installation of a new Computer Aided Dispatch (CAD) system. The new CAD system is a fiber-based network consisting of SONET with DWDM and Ethernet. This will replace the current CAD system, which is modem based and operates on the City's copper infrastructure. The new CAD system is designed with enhanced capabilities to improve dispatch, including mapping capabilities now available due to the additional bandwidth provided by the fiber network.

Milwaukee's Technology, an Elite Group — Last year an additional 6 miles of Fiber Optic Cable was installed to enhance the City's telecommunication network, providing connectivity to the following: from Police District 5 to Coggs Health Center. Installations also included links from Engine 38 to Engine 39, from Municipal Equipment to 123 South 25th Street Building, and from 1540 West Canal Street to Marquette University.

Not limited to wired solutions, in 2003 the Communications Unit played a vital role in the installation of two **"WiFi Hot Zones"**. The City's Web page (http://www.milwaukee.gov/wifi/winterwifi.html), states that, "The Milwaukee Free Wi-Fi Network is an exciting opportunity to highlight the importance and predominance of technology in the City of Milwaukee. We are one of the first cities in the country to provide this type of service in public spaces. " The hot zones serve the Pere Marquette Park and Cathedral Square Park areas downtown. In addition, the City of Milwaukee is one of a few other municipalities in the nation that owns and uses a community fiber network such as the one Communications unit is responsible. Providing these services over continuous bases will ultimately save the City $15 million dollars in leasing costs over the next 15 years. This places Milwaukee in an elite group

In addition, the Communications Unit worked with the Infrastructure Division to provide a fiber route through the City's underground conduit to CableCom, also known as Midwest Fiber Networks. This route provides connectivity deep into the City of Franklin from downtown Milwaukee. The utilization of this conduit brings additional revue into the general fund providing overall tax relief for the citizens of Milwaukee.

Marquette Interchange Project — Activities started in the fall of 2003. Late in 2003, the Communications Unit began the task of relocating cables in the Clybourn Contract area in order to keep critical connections going during the Marquette

Interchange Project. The overall project is scheduled to extend approximately 6 years. Future projects will be coordinated around the activities of the Marquette Interchange to take advantage of planned outages while adding to reliability and redundancy of the fiber network.

The communications staff is essential in the installation and maintenance of the City's communication and telephone network providing 24-hour trouble free telephone and data services. As technologies advance in communications, this staff provides and maintains the latest in category 6 cabling for Local Area Networks as well as multimode and singlemode fiber connectivity utilized by the City's ATM, SONET with DWDM, and Gigabit Ethernet networking technologies.

All of this was accomplished while at the same time reducing staff by two positions. Communications looks forward to the 2004 year and anticipates similar success in 2003.

Special Electrical Services

Headed by a professional Electrical Engineer, this group consists of fifteen full-time Electrical Mechanics averaging in excess of twenty years experience per man in the field of electrical wiring, maintenance, and construction. Over fifty percent are; State of Wisconsin certified Master Electricians, as others hold credentials in Refrigeration, Electrical Inspection, and Industrial Instrumentation.

In 2003 Special Electrical Services has participated in, and completed a multitude of construction projects ranging from small office and shop alterations, to large-scale remodeling projects. The group performed all power wiring associated with elevator modernization at the Zeidler Municipal Building, 809 N. Broadway, and the Police Administration Building. The group is responsible for all electrical wiring required to complete remodeling on the Fourth Floor of City Hall, the Fifth and Tenth Floors in the Municipal Building, as well as the new Body Shop and Truck Wash Facility at the Central Repair Garage.

(L. to R.)Heat Recovery, Micro-turbine and Natural Gas Compressor

Micro-Turbine Technology — A newly installed micro-turbine back-up generator was installed in the newly renovated Robert A. Anderson Building. This Unit's Supervisor, Mr. Andy Hilgendorf played the lead role for project management and coordination for the installation of this unit. This generator has it's own ability to detect peak demand usage and "shave" off expensive peak energy demand that will save the city money in energy costs. This installation also has the capability to generate, if necessary, energy that may be placed back on to the We Energies power grid. This natural gas unit also will help supplement energy demand by recapturing the heat from the exhaust of the unit and used to help heat the building. This demonstration project will show how new technologies can be applied to lower the cost of energy by approximately 40% of that of a conventional generator.

In 2003 the group was also instrumental in designing and planning emergency back-up power up-grades, and an on-site power generation project that will utilize the latest energy-cost saving technologies at the Downtown Complex. This generator project is scheduled to be installed in 2004.

New for 2003 — The group has launched a power analyses program. This program is identifying power quality concerns, and providing predictive maintenance scenarios assuring greater reliability of power systems. Data collected by power analyses will be used to provide cost effective energy management and energy conservation solutions for the future of city buildings.

Also new in 2003, Special Electrical Service is pioneering a new software program custom tailored by this group to track job cost, progress, and status. The software allows employees to enter time sheets and material expenditures electronically. The data can be sorted and filtered by different formulas indicating productivity and project status to date.

Throughout 2003 staff members have participated in a wide range of continuing education opportunities. As always, the group has displayed an eager willingness to adapt to an ever-changing work environment, welcoming change brought on by new systems and technologies.

Supported by a small, but dedicated, and efficient inventory management and laborer staff, Special Electrical Services continues to provide prompt, competitive service to meet the City of Milwaukee's most critical electrical needs. Providing 24-hour on call emergency service, the group prides itself on their ability to perform high quality, reliable electrical service, to a valued customer base.

Carpentry, Painting & Masonry Units

This unit provides highly skilled trade services, which includes painting masonry, tuckpointing, stonework, ceramic tile, concrete walks and driveways, steel stud and drywall, millwork, cabinet making, floor and ceiling tile work and general maintenance of City buildings. This unit's employees were an integral part of the Section's Design-Build team, which included a number of remodeling projects. Remodeling work began in 2003 on the 4th floor of City Hall. This work will be completed in 2004. Staff remodeled the Keenan Health Center for the new STD Clinic and had considerable involvement in the remodeling of the Central Repair Garage to accommodate the consolidation of Southwest Shop with Central Repair Garage.

New Street Scene at the Safety Academy in 2003 — Crews re-constructed a new Street Scene, at the Safety Academy for the Police Department. This Street Scene which replicates actual street environment, plays an important part for the training of

our Police officers. Remodeling work was done on 3 sets of women's and men's restrooms, located in the City Hall Complex, to meet new ADA (Americans with Disabilities Act) requirements and new tile floor was installed in the basement of the Municipal building. A smaller remodeling project was completed at Engine house # 2 along with concrete work a various fire houses. Concrete work was also completed at many locations for numerous Departments including Health, Police and DPW-Water Works.

As part of our general maintenance and services, this unit provides totlot repairs, re-keying for security purposes of city buildings, including over 2800, board ups that were performed in 2003 for the Police, Fire, Condemnation and Department of Neighborhood Services.

Operations and Maintenance Unit

Global Interest and Partnering — In January of 2003 the installation of Lake Tower Anderson Building Microturbine was completed. The collaborative efforts between the City, We Energies and Focus on Energy made this leading technology demonstration project possible. Mr. Joe Jacobsen, Manager of this unit, played a lead role as the Departments liaison in the efforts in organizing this innovative project. Aside from saving energy from and environmental point of view and saving dollars from a financial point of view, the Microturbine serves as a lab for the academic community. Students, engineers and scientists may log-on to an Internet based real-time data collection system. We have received interest from places as far away as Australia and parts of Europe. Numerous presentations and positive articles have resulted from this project and interest is continuing to grow.

Strong Emphasis on training for 2003 — In 2001 the facilities maintenance section completed an 11 course technical training program. Based on the success of the technical training program, facilities maintenance assembled a second training program. However, this time the program is focusing on **Leadership and Management Practices (LMP)**. This series was kicked off in September of 2003 with a session titled, "Respectful Workplace" and had 32 participants. Respectful Workplace" topics were discrimination laws, definition of harassment, violence and respectful workplace, general harassment, workplace guidelines, various discussion examples and acceptable behavior in the workplace.

Two other LMP sessions that were completed in 2003 were: 1) Coaching and 2) Conflict Resolution. Conflict resolution covered topics such as: style of handling conflict, exploring the benefits of proactively handling difficult situations, building confidence in communicating during difficult situations and defining what success looks like when "dealing with people." Seven LMP sessions are scheduled for 2004 and topics range from team building and organizational change to operations management. The program has been so well received that we have included Sanitation and Forestry supervisors and managers as participants.

Working Relationships — Developing relationships with outside service providers can be a positive experience for all parties when handled correctly. Buildings and Fleet is actively pursuing an optimal mix of in-house and outside service providers. By involving the staff in the beginning of projects and day-to-day operations with outside service providers, in-house staffs gain a comfort level by working shoulder to shoulder with the private sector. Positive relationships develop when we see that private sector service is an opportunity to combine expertise and resource to do a better job.

Supply chain management is becoming more and more important to the facilities maintenance section. In 2003 a long-term relationship between a buyer and a supplier characterized by teamwork and mutual confidence has materialized with several vendors. The supplier is considered an extension of our organization. Meeting with our vendors on a regular basis to better understand how to meet the City's needs at a reasonable cost is why we have by-weekly meetings with Johnson Controls, for example. We have increased our meetings to include other vendors and we have already achieved better service and sizeable discounts through better supply chain management.

Fleet Repairs Section

Buildings & Fleet Services, Fleet Repairs Section provides repairs and preventative maintenance to the city's vehicles, and municipal equipment. In 2003, $12.3 million in operating funding and $4.9 million in capital funding were budgeted for major equipment purchases.

Consolidation of Two Garages — A major change at Fleet Services during 2003 was the closing of the Southwest Garage and consolidation of those employees and the services they provide into the Central Repair Garage. This enabled us to convert the Southwest Garage into a "warm storage" facility, reducing the need for expensive critical repairs. We also realized cost savings with the elimination of one supervisory position. Additionally, workflow efficiencies will be recognized with the centralization of the operation.

The Southwest Garage consolidation was made possible by moving the Fleet Services Tire Shop to space in the recently leased facility at 123 N. 25th Street. This location, previously used by the Milwaukee Metropolitan Sewerage District, is across the street from Fleet's Central Repair Garage and is shared with DPW Parking Enforcement section. A part of the building formerly used as a truck-parking garage was remodeled into a new Tire Shop, and the old, inefficient, tire shop location at the Central Repair Garage was converted into a body repair facility. This two-part project was overseen by Facilities Development & Management Section's Architectural, Mechanical, and construction management units, with input and assistance from employees throughout Buildings and Fleet.

New Tire Shop Facility — With the assistance of design consultants from Graef, Anhalt, & Schloemer and plenty of input from Tire Shop personnel and coordination efforts from our Design Unit, a plan was developed to convert a former parking garage into a new work area. This newly utilized space not only allows for a safe working environment, but also utilizes the best possible process flow. Lean process methodology was used to provide for a compact, and efficient work space.

One feature of the new Tire Shop is an adjustable rack system that can be configured to accommodate various size tires, from small passenger car and implement tires, to large truck and

equipment tires. In order to safely stock and retrieve tires from higher racks, employees now utilize a "merchandise-picker" lift truck. The operator rides up with the forks when they are elevated, and can place tires onto the truck. This virtually eliminates the need for dangerous overhead reaching and makes better use of available space.

Another feature incorporated in the tire work area is the inclusion of a drive-through service area. Vehicles needing tire service can easily be driven into the shop for work, with the needed tools and supplies nearby. At night, this area serves as inside parking for the group's road-service trucks.

New Body Shop — As with the design of the Tire Shop, the new body shop area was laid out with input from the employees and with the assistance of consultants from Graef, Anhalt, & Schloemer. Again, safety and efficient workflow were prime considerations in layout and equipment planning.

An old, unused dynamometer was removed to make room for a painting booth large enough to accommodate most of the City's vehicles. Our Trades staff from the facilities area provided assistance with the contractor. A smaller painting booth, known as a "prep station" was also added. Both areas feature state-of-the-art technology regarding airflow and filtration. Special equipment for drying and conditioning compressed air was added, along with protective gear for employees to use while painting, which supplies them with clean breathing air, minimizing exposure to chemicals. Another change made to the former tire shop is the addition of another overhead door to allow better access without undue maneuvering of vehicles.

In order to help employees achieve the best possible repair; lighting was upgraded, minimizing dark spots and shadows. Walls, ceiling and floor were all painted a light color to reflect light.

New Equipment Purchases included the following:

- Nine five-yard dump trucks with underbody plows, front plows, and all-stainless steel salt spreaders with 320-gallon liquid de-icer storage and microprocessor based dispensing equipment. These trucks are used as front line ice control equipment in the winter, and are also used by DPW divisions throughout the warmer months, for hauling various materials and pulling trailers.
- Nine 25-yard recycling packers equipped with new truck chassis and used recycling bodies purchased from the City of Cleveland. All bodies were completely rebuilt and updated, and include more efficient cart lifter devices, which will last longer, need fewer repairs, and cause much less damage to carts than the previous style of cart lifter. The savings generated by purchasing and rebuilding the used bodies was approximately $282,000 versus buying new bodies.
- Five 2-yard dump trucks, each equipped with an auxiliary toolbox between the cab and the body, for securing all tools and accessories.
- Two mini-cargo vans with specialized interior compartments and accessories designed for the work at hand, to provide the safest and most efficient work environment possible.
- Nine multi-purpose tractors, with various attachments such as snow plows, salt spreaders, and leaf rakes, for sidewalk and street snow removal, and leaf pick-up. These tractors are equipped with hydrostatic transmissions, which will reduce the maintenance and repair costs associated with the older manual shift tractors currently in the fleet.

Paint Booth Under Construction

New Multi-Purpose Tractor

Finishing Touches on New Body Shop

Refurbished Recycle Body Truck

- Two 60-foot aerial lift trucks with chip boxes, for the Forestry tree trimming operations. Each aerial lift truck is constructed in a manner that will require less routine scheduled maintenance than other available trucks. In addition, the industry standard five and ten year rebuild requirements are not required by the aerial lift manufacturer, which will save the City approximately $18,000 per truck over the course of its use in City service
- Six street sweepers with all hydrostatic drive system, which will reduce maintenance requirements, and pressurized cabs to reduce operator fatigue, resulting in greater productivity. These sweepers include a spring suspension system on the rear wheels that was developed by City of Milwaukee technicians, to reduce wear on the sweeper, and improve operator comfort.
- One full-size pickup truck with an under-hood, engine driven air compressor, to eliminate the need to pull a trailer mounted air compressor behind the truck. This improves the safety of the operation, as there is no trailer and associated backing situations, and reduces costs by eliminating the need to purchase more expensive trailer mounted compressors.
- One 30-foot long heavy-duty construction equipment trailer with tilting platform, for use in routine transporting of heavy construction equipment, and emergency retrieval of equipment. This trailer has an integral engine and hydraulic power source, to hydraulically tilt the platform, and operate a 20,000-lb. winch, to load/unload the trailer.
- Two digger-derrick trucks, each equipped with wireless control systems that allow the operator to control the unit from the ground with the best vantage point for digging operations, versus an operator seat on the back of the truck. This design affords maximum safety for the operator against electric shocks, should the digger come into contact with a buried cable, and protects the structure of the unit by preventing the lifting of a load that is too heavy for the truck.

The repairs Section is responsible for the repair and maintenance of over 4,185 vehicles and pieces of equipment belonging to the Department of Public Works, the Milwaukee Police Department and other City agencies. The number of authorized full-time positions in Repairs, including the Stockroom and Tire Shop, is 147. Work Orders completed in 2003 totaled 31,415. This is a decrease of 1,480 Work Orders from 2002.

Stockroom activity includes disbursements from inventory of $1,749,496, a decrease of $240,899 or about 12% less than in 2002. Emergency purchases or items not in inventory, totaled $1,549,636 a decrease of $57,898, representing about 3.6%. Service Order Activity totaled $1,411,572, a decrease of $74,045 or about 5%.

The stockroom also reports the following statistics from its recycling program:

- 72.25 barrels of used oil filters recycled
- 71.46 tons of used tires sent to the shredder for recycling
- 10,400 gallons of motor oil recycled
- 1,323 batteries returned for recycling
- 1,080 gallons of antifreeze recycled

Operations Section.

Fleet Operations and Driver Training

Buildings & Fleet Services, Fleet Operations/Dispatch Section provides drivers, operators, special equipment operators and driver training to all sections within DPW. In 2003, $10.9 million in operating funding was budgeted for driver, dispatch and training services. The section plays a key role in the City's snow fighting efforts.

Training and Testing

In 2003, the Training Section trained 263 employees. A total of 442 classes were held on various subjects.

In addition to the formal training given by our instructors, our third party Commercial Driver License testing program conducted 216 CDL road tests.

We customarily hire 75-80 new seasonal laborers per year, each of which receives a 1-day new Laborer Evaluation, a 2-day SnowPlow Class and a 1-CDL Class with test.

Training Activities

	2002			2003		
Type	Days	Students	Training Days	Days	Students	Training Days
Backhoe	9	2	8	3	8	24
Broom	9	18	48	3	29	69
Defensive Driving	1	8	8	1	6	6
Driver Worker Eval.	1	49	49	1	19	19
Forklift	1	118	118	1	66	66
Labor Eval.	1	45	45	1	8	8
Library Van	1	7	7	0	0	0
Roll-off	1	20	20	1	2	2
Skid Loader	1	5	5	2	75	150
Snow Plow	1	77	77	3	8	0
Snow Plow	2	44	88	1	0	18
Tow Truck	1	5	5	3	22	66
Vac-Con	5	1	5	1	9	9
WD D Backhoe	4	1	4	5	1	5
		398	485		242	436

Fleet Accidents

The Fleet Operations Section prepares accident reports for all fleet vehicle accidents. It also investigates all reports of damage where the involvement of fleet vehicles is reported. In 2003, 434 accidents were investigated, a slight increase from 430 accidents in 2002. This compares to 437 in 2001.

AVL- Automated Vehicle Location Project

The Operations Division continued a pilot project examining the use of automated vehicle location technology in some of its equipment. The purpose of this test project was to demonstrate that the technology was suitable for application in municipal equipment, define the types of equipment from which suitable benefits could be derived from the installation of equipment, and to determine the overall costs / benefits from installation of the equipment.

DPW Making Use of Global Positioning — The Operations Division continued a pilot project examining the use of automated vehicle location technology in some of its equipment. The purpose of this test project was to demonstrate that the technology was suitable for application in municipal equipment, define the types of equipment from which suitable benefits could be derived from the installation of equipment, and to determine the overall costs / benefits from installation of the equipment.

Automated Vehicle Location technology utilizes a vehicle mounted Global Positioning System tracker, a wireless reporting device, and a data retrieval unit to provide real-time information on vehicle position and status throughout the workday. While the GPS tracker is fairly standardized, a variety of configurations for the reporting and data retrieval systems exists using everything from complete "stand-alone" systems to service vendors which provide remote access to your data using their shared system.

While the technology is out of initial development, information on the correct system for a given application is sparse. The Operations Division decided that a pilot project would be the best method of obtaining the needed information to make an informed decision on the appropriateness of a full-scale deployment of such a system.

Results of the pilot have so far showed that an aggressive analysis of the data from such a system can result in productivity gains. Those gains require that managers analyze the data and make changes in their operating procedures to realize the benefits. Productivity and scheduling efficiencies have already come out of the program. By comparing workloads to vehicle positions for our roll-off operation, it was determined that need for roll-offs during the early morning hours was lower than the number scheduled to work. One early morning roll-off was rescheduled to later in the day when the need for roll-offs was greater. The AVL data simplified the difficult process of following units around in a classic time-motion study to compare of assignments, overall workload, and actual position of the vehicles.

The pilot also demonstrated that the communications technology utilized in these systems is presently changing very rapidly. This situation is seen throughout the electronics industry where smaller, more capable devices are being released weekly.

The pilot is still in that phase. Current plans are to examine use of the technology in several other types of equipment, involved in work regimes that are somewhat different than those initially studied.

Environmental Services

Zeidler Municipal Building
841 North Broadway
Room 620
[414] 286-3341

Preston D. Cole
Environmental Services Superintendent

Michael J. Engelbart
Sanitation Services Manager

Robert McFadyen
Forestry Services Manager

In 2003 the Department of Public Works combined the Forestry Division and the Sanitation Division into the Environmental Services Section. Environmental Services is comprised of approximately 600 employees who provide top-notch public services. The merger of the former Forestry and Sanitation Divisions presents many opportunities to achieve efficiencies.

These include the areas of facilities, equipment, emergency management, customer service, staff training, and cross training. Utilizing these opportunities will ensure that the Environmental Services Section continues to provide the City of Milwaukee high quality services at the lowest possible cost.

SANITATION

Sanitation's main objective within the City's overall Strategic Plan is to keep our neighborhood streets and alleys clean. Several programs address this goal including:

Garbage Collection —

In 2003, Sanitation provided 190,000 Milwaukee households with 50 curbside collections that generated 179,784 tons of residential waste.

Apartment Collection. Effective January 2001, Milwaukee City Ordinance 79-2 required that apartment buildings of five or more units be charged 100% of the cost for garbage collection services. Sanitation first began charging apartments for garbage collection in 1998. Sanitation presently provides solid waste collection to 53% of the city's apartment buildings and has collected revenue of $900,000 in 2003.

Skid-Steer Loaders. Sanitation has been instrumental in neighborhood cleanup programs using small skid-steer loaders with grapple bucket attachments. Skid-steer loaders have the ability to safely pick up large piles of loose debris, garbage, bulky items and brush, and dump it directly into garbage packers. This equipment has greatly expanded Sanitation's scope of operations while reducing the potential for back injuries, puncture wounds, cuts, abrasions, and animal bites.

Skid-steer loaders are now used routinely on special collection crews and are extremely effective in emergency cleanups resulting from windstorms or floods. These machines collected 10,665 tons of debris in 2003. Using skid-steer loader crews, Sanitation continued as one of the Department of Neighborhood Services' exterior nuisance remediation contractors in 2003. All DNS remediation work had previously been done by the private sector.

Special Collections. Besides garbage and recycling collections and systematic neighborhood cleanups, Sanitation also makes special bulky and brush collections upon request. Through these special collections, Sanitation disposed of 18,578 tons of bulky items and composted 4,343 tons of brush. Sanitation crews also made special collections in response to 387 sheriff's evictions in 2003.

Keeping Neighborhoods Clean —

Street Sweeping. In 2003, a total of 73,500 curb miles of Milwaukee streets and alleys were swept by mechanical brooms with 7,300 tons of debris collected.

Neighborhood Clean-Ups. Sanitation offers roll-off dumpster boxes for weekend neighborhood and block cleanups from April to November. In 2003, a total of 1,623 boxes were placed for residents. These cleanups produced 5,190 tons of waste material.

Sanitation serviced 1,059 civic celebrations in 2003 that included the Great Circus Parade, Harley Fest, and numerous neighborhood block parties and Church festivals. In total 131 festival boxes, 14 roll off boxes for solid waste collection and 10,067 barricades were supplied.

In 2003, Sanitation entered into an intergovernmental cooperative agreement with the City of Wauwatosa. Sanitation provided street sweeping service for the residents of Wauwatosa. Sanitation will continue to explore opportunities for future cooperation.

Operation Immediate Clean-Up. Operation Immediate Cleanup began as an annual, systematic, springtime operation to clear alleys of winter debris. The program has expanded, and know continues through summer. Overall, this operation collected 1,515 tons of bulky

items, 287 tons of brush, and 36 tons of tires. As part of this cleanup effort, 1,146 miles of streets were swept producing 932 cubic yards of debris.

Directed Neighborhood Clean-Ups. Sanitation and the Department of Neighborhood Services (DNS) again collaborated on successful neighborhood clean ups. The program provides residents in a selected area with a systematic special pickup service and a follow-up canvass by DNS to order the removal of any remaining litter and nuisance vehicles. Sixteen directed neighborhood clean ups were conducted in 2003.

Self Help Stations. The city operates two Self-Help Centers located at 3879 West Lincoln Avenue and 6660 North Industrial Road. Each site has multiple boxes to facilitate convenient service for city residents and property owners. City of Milwaukee residents use the Self-Help Centers to recycle used motor oil, oil filters, antifreeze, appliances, tires, recyclables, brush, computers, and to dispose of excess non-hazardous waste. Non-commercial construction and demolition materials up to two cubic yards are accepted from city residents at the Centers.

Leaf Collection. The fall leaf operation collected over 14,501 tons in 2003.

Household Recycling and Waste Reduction —

Sanitation endeavors to reduce the amount of residential solid waste being landfilled. Sanitation utilizes the following programs and partnerships to achieve this goal:

Recycling. In 2003, Milwaukee's curbside residential recycling program collected 26,100 tons of materials. This nationally recognized and highly innovative recycling program serves specific neighborhood's needs through the use of semi-automated cart collection or weekly bin collection. In addition to curbside collections, residents may also bring additional commodities to the City Self Help Centers.

Milwaukee's recycling and composting programs diverted over 52,185 tons of materials from landfills in 2003. In addition, 6,590 computer components, 5,295 gallons of waste antifreeze, 82,100 gallons of used motor oil, 7,413 pounds of freon and 1406 batteries were collected and recycled.

Waste Reduction and Education. Waste Reduction continued to be a high priority in Sanitation's education and outreach materials. Waste reduction reduces tax dollars needed for garbage and recycling collection. Consumers also benefit by saving money when shopping by reducing packaging. Sanitation continued its participation as a founding member in the regional BeSMART waste reduction campaign with the Southeast Wisconsin Waste Reduction Coalition by assisting Milwaukee festivals and events with their recycling efforts. Venues included the West town Farmers' Market, Lollapalooza, Jazz in the Park, River Rhythms, the Sierra Club Art Show and the Harley Davidson 100th Anniversary. Harley Davidson events reported reusing or recycling 209 tons of material. Sanitation continued to be responsible for the collection of recyclables at Miller Park. In 2003, 23.5 tons of ballpark material were collected and processed at the City of Milwaukee's Materials Recovery Facility.

The unique relationship between Keep Greater Milwaukee Beautiful (KGMB) and the City of Milwaukee continued in 2003. KGMB conducts educational programs and Materials Recovery Facility (MRF) tours. During 2003, MPS students and adults toured the Education Center and the MRF to get a first hand look at the processing of recyclables. Participants were also given classroom demonstrations designed to heighten the awareness of pollution prevention, resource conservation, waste reduction, and recycling.

Snow and Ice Control —

Plowing and Salting Operations. Public safety is the highest priority during snow and ice control by the Department of Public Works (DPW). Operations Division staff direct and supervise snow and ice control operations on the city's 1,400 miles of streets.

Snow and ice control operations remove snow and ice as expeditiously and economically as possible minimizing economic losses to the community.

The operational response is based on the severity of the storm. Snow and ice control operations vary in size from a few vehicles intermittently salting isolated slippery spots or bridges to full scale plowings utilizing approximately 400 pieces of equipment. The most

Annual Mayor's Landscape Awards Held at the Milwaukee REALTORS® Spring Show

The Annual Mayor's Landscape Awards were held on Sunday, March 23 at the Midwest Airlines Center in conjunction with the Milwaukee REALTORS® Spring Show, the nation's longest running and largest home and garden show in the state. The awards are sponsored and coordinated by Greening Milwaukee.

Joe Wilson, Executive Director of Greening Milwaukee, served as the master of ceremonies. Mayor Norquist welcomed the crowd of more than 200 attendees and spoke of the importance of the greening efforts coordinated by Greening Milwaukee and the value those efforts add to the City of Milwaukee. Several special recognition awards were presented.

David J. Frank Landscaping Contracting, Inc.received a special recognition award for outstanding contributions to Greening Milwaukee. Awards were also presented to the Milwaukee Metropolitan Sewerage District for their efforts to Greening Milwaukee through their storm water trees project and rain garden project and to the Greater Milwaukee Assn. of REALTORS®. The REALTORS® Association members will also actively participate in the Greening Milwaukee "Adopt-A-Tree" initiative by offering every new homeowner an opportunity to receive a free tree.

Awards were presented to 34 homes, two in each aldermanic district and a grand winner, "Best in Gardens." The "Best in Gardens" winners, Daniel Austin and William Koehn, 2714 S. Delaware Ave., were selected based on landscaping, plant and tree variety, color balance and blend, appearance, diversity and lawn care.

Residents will be encouraged to nominate their neighbors for the 2003 Mayor's Landscape Awards at the June Garden Party, which will be held at Villa Terrace Museum and Gardens. For further information, contact Joe Wilson at (414) 272-5462.

common operation is a General Ice Control (GIC) during which 90 salt trucks are sent out citywide. Salt is applied at the minimum rate needed to achieve public safety.

Streets are prioritized for salting and snow plowing operations based on traffic volume, public transportation routes, and providing the community access to emergency services and schools. Mains or arterial streets are addressed first. Residential streets are addressed when the mains have been completed.

When a major storm occurs, a General Plowing is initiated. It may take 12 to 18 hours to complete, depending upon the severity of the storm. During storms of long duration, plows concentrate on keeping main streets open. Additional operations, such as clearing snow islands left by parked cars, touching up intersections and widening residential streets, continue after the initial plowing is completed. Cleanup may last for several days after a storm. The city does not plow alleys. There were two General Plowing operations and 23 General Ice Control operations in 2003. Nearly 43,000 tons of salt were spread across city streets during these operations.

Administrators Retire —

Sanitation's three top administrators, with a combined 103 years of experience, retired from city service. Sanitation's Superintendent, David Lorbeske, retired after 34 years. Sanitation's Administration and Projects Manager, Richard McDonnell, retired after 30 years. And Sanitation's Operations Manager, Gene Gibson, retired after nearly 39 years. Sanitation extends to each of them a happy and healthy retirement.

FORESTRY

Forestry is responsible for the design, planning, planting, and management of street trees, boulevards, landscapes, greenspaces, and beautification projects within the City of Milwaukee.

Beautification Projects. The boulevard on East Kilbourn Avenue, from Water Street to Broadway, exhibited a colorful array of annuals, perennials, shrubs and trees. The display incorporated seasonal changes such as bright colored annuals in spring and summer; Belgian Mums planted in fall, and holiday decorations for the winter. Additionally, by reducing turf, Forestry has eliminated the need for mowing and pesticides needed for turf maintenance.

Milwaukee Downtown Business Improvement District #21 selected the City of Milwaukee for the 2003 Downtown Green Thumb Award. This award recognizes a downtown business or entity for meticulously maintaining exterior landscaping year round, including plantings and floral displays. The 2003 Downtown Achievement Awards was held on Thursday, November 13th at The Milwaukee Theater. This award recognized the Forestry Section's work on the Kilbourn Avenue planter.

On East Capitol Drive, from North 2nd Street to North Humboldt Boulevard, the business district and Forestry implemented a new raised planter design. The design incorporates "dry set" limestone blocks that create raised planting beds that are irrigated with a drip system. In 2003 Forestry planted a wide selection of annuals and perennials in the newly created planters. The striking flower displays received many compliments from businesses and citizens alike.

The new McKinley Blvd. Project from 6th St. to 3rd St has a new planter design that will incorporate large trees and other landscape material. This boulevard will be a gateway to the downtown area and adjacent businesses and planned housing development.

Community Outreach. Forestry continued with its tradition of fostering community based public/private partnerships. Many of these partnerships are designed to assist community groups with beautification related activities, and included:

- Coalition for Hope Block Watch
- Union Pacific Railroad, Logan Street
- Liberty Gardens
- BayView Garden and Yard Society
- Milwaukee Alliance

Petunia Time at the Municipal Nursery

The Forestry Division is responsible for the design, planning, planting, and management of boulevards, landscapes, greenspaces and beautification projects within the City of Milwaukee. Forestry manages vegetation on 121.8 miles of boulevards, 57 totlots, 59 greenspaces, 20 municipal properties and 20 downtown above ground planters. Hundreds of thousands of plants and flowers are used in these projects, and the majority of them come from the City's Municipal Nursery.

Kris Hansen, Urban Forestry Specialist and a photo enthusiast, documented his fellow co-workers as they took on the daunting task of growing petunias to beautify the City's landscape.

Dave Beisser, Nursery Laborer, provides an up-close shot of transplanting petunias.

(Front to back), Lynn Ocepek-Peppey, Nursery Crew Leader, Katie Munson, Nursery Laborer, Ricardo McClain, Urban Forestry Specialist, Gwen Sauer, Nursery Laborer, and Dave Beisser, Nursery Laborer, work together to complete the transplanting process. Mike Lasecki, Special Equipment Operator observes the teamwork.

Keith Gelhar, Urban Forestry Specialist, fills the flats with soil in preparation for the transplanting process.

Jan Grocholski, Nursery Coordinator, supervises all of the nursery operations. Grocholski's staff produced 1,900 flats of petunias, which yielded 82,142 flowers.

Lynn Ocepek-Peppey, Nursery Crew Leader, transplanting petunias.

Paul Kaminsky, Nursery Laborer, uses a Dosi-tron, a fertilizing machine to enhance growth of the petunias.

"Best in Garden" award winners Daniel Austin and William Koehn with Mayor Norquist and David J. Frank, landscape company owner.

Joe Wilson, Executive Director of Greening Milwaukee with two time Landscape Award winners, Mrs. Mavis McCallum and Mr. Thomas McCallum.

David J. Frank and Mike Ruzicka, Executive Vice President of the Greater Milwaukee Association of Realtors® received awards for their sponsorship and support of the event.

16th District Alderman Michael Murphy, Mayor Norquist and Preston Cole, Environmental Services Superintendent and president of the Greening Milwaukee Board.

The Operations Division-Forestry and the City of Milwaukee were recognized at the Tree City-USA banquet in Madison, Wisconsin in March 2003. Pictured, left to right: DNR Secretary Scott Hassett, Debra McFayden, Bob McFayden, Forestry Services Manager, and Tina Schweitzer of the National Arbor Day Foundation.

City of Milwaukee, "Tree City-USA" for 24th Consecutive Year

For the 24th consecutive year, the City of Milwaukee has been named a "Tree City-USA" by the National Arbor Day Foundation. This program recognizes communities that make a commitment to the planting and care of trees. There are four requirements communities must meet in order to be designated a Tree City-USA:

A tree board or department with the legal responsibility of caring for public trees and the authority to develop and administer a community tree management program.

A municipal tree ordinance regulating and establishing authority for tree planting, maintenance, protection and removal.

A community forestry program with an annual budget of least two dollars per capita spent on tree care and management.

An Arbor Day observance and proclamation.

The Foundation also recognizes those communities that go above and beyond the basic requirements of the Tree City-USA program. Those communities are presented with the Growth Award, which was also awarded to the City of Milwaukee.

— Claudia Whittow, Forestry Division

The Mayor's Landscape awards honor members of the community who, through their greening efforts, beautify and add value to Milwaukee's neighborhoods. These fantastic gardens are awarded annually in the following categories: residential (home, balcony, rooftop and window sill), business (commercial, professionally landscaped, sub-division, church and school), and creative (most imaginative).

In 2002-2003, over 450 entries were received thanks to the efforts of Greening Milwaukee and the advertising support of the Milwaukee Journal Sentinel. Judges reviewed digital photos and still pictures submitted by applicants. The judges awarded two winners in each category in each of the 17 aldermanic districts.

Award ceremonies were held in March 2003 at the Midwest Airlines Center in conjunction with the REALTORS® Spring Show. Mayor John O. Norquist presented each winner with a sculpted award and each finalist received a certificate. The entrants were all invited to attend the 2003 REALTORS® Spring Show — the longest running and largest home and garden show in the state as guest of the REALTORS®.

The Mayor's Landscape Awards also honored the following businesses and organizations for long-standing support of keeping Milwaukee Green: David J Frank Landscaping, Milwaukee Metropolitan Sewerage District and the Greater Milwaukee REALTORS® Association.

The City/County Holiday Tree Lighting ceremony had a special significance for two families in greater Milwaukee. The family that donated the tree and the family that planted it. Common Council President Marvin Pratt and Milwaukee County Executive Scott Walker lit the tree that was donated by Katherine and William Metzen and planted by the Krah family. The Krah family had planted the tree 29 years ago as a memorial to the son who was killed in a car crash.

The City/County Holiday Tree was sponsored by Greening Milwaukee and TDS Metrocom, with additional assistance provided by the East Town Association, Starbucks Coffee, Onmilwaukee.com, Milwaukee Downtown, Milwaukee County and the City of Milwaukee. The tree was erected at the Red Arrow Park to compliment the re-opening of the County ice rink.

This year's official program began with a concert in City Hall rotunda provided by the Lincoln Center for the Arts Middle School choir. The choir then presented an outdoor concert and a series of holiday songs at Red Arrow Park.

The City of Milwaukee received the award for the boulevard planters located on East Kilbourn Avenue. The boulevard, from Water Street to Broadway was reconstructed to incorporate a "new" look that boldly enhances the streetscaping in this area. With the use of raised planters, lighting, and a new irrigation design, the endeavor illustrates new and exciting options for landscaping the city's boulevards. Additionally, by reducing turf, Forestry has eliminated the need for mowing.

Insect and Disease Control. The City of Milwaukee experienced an increase in Gypsy Moth population in 2003. The population growth indicates that treatment is warranted to control this pest in 2004. In order to control this pest safely and efficiently the City entered into a cooperative agreement with the Department of Natural Resources and the US Department of Agriculture and nine other Milwaukee County communities. In spring, around mid-May or early June, small airplanes will apply the pesticide Foray 48b. This product is specific to caterpillars when they feed. The chemical name of the product is ' Bacillus Thuringiensis' kurstacki. This product is a naturally occurring soil bacterium that has been generally safe around humans and pets. Control of the pest in treated areas has been as high as ninety percent.

Participation in this program required that all property owners within a spray area be notified in writing. In addition, Public Information meetings were held at three sites to inform property owners, residents and citizens of the scope of the treatment program and the expected results. Forestry also included the Milwaukee Health Department and the Department of Natural Resources at the meetings to answer health related questions.

The City also experienced an insect infestation on its Linden tree population. The unwelcome visitors can be a significant problem causing the affected trees to severely decline and eventually die if not treated. Forestry, in cooperation with the University of Wisconsin – Madison, is conducting an ongoing research project testing the effect of two different systemic chemical controls utilizing soil injection techniques. As the borers come into contact or ingest the treatments insect control is achieved. University of Wisconsin research scientists will then record insect response, mortality, and chemical efficacy in a published report.

New Initiatives. Technology was implemented in the irrigation design of Kenwood Boulevard, Oakland Ave. to Downer Ave. A computerized automated system was installed to alleviate the need to activate water systems manually. The small area will be used as a test site to monitor the effectiveness and reliability of the system. If the tests show reliability they may be used in renovation projects, as they occur, throughout the city. This would allow Forestry to water at night and conserve a valuable resource during warm weather.

A program that started as a pilot project in Forestry has become permanent. Historically, Forestry and Sanitation had separate enforcement responsibilities. These activities are consolidated into one section, Forestry, creating less confusion. The program, known as 'Code Green', involves enforcement of ordinances pertaining to weeds and tall grass, hazardous trees, encroachment issues related to sidewalks, streets, and alleys and sidewalk snow. Complaints are received electronically at Forestry field locations through the call center. They are responded to by Forestry Technicians and remedies are then prescribed to the property owner as well as the time frame to get the work done. In addition, the property owner is informed of the consequences and cost of non-compliance. If the owner complies there is no follow up. If the property owner does not comply, appropriate action is taken to either schedule the work by Forestry staff or a private contractor.

Forestry's construction inspection program received recognition through a published article in Contractor Tools and Supplies magazine. James Kringer, who heads the construction inspection program for Forestry, explains the importance of communication with contractors and how to save trees during the construction process. The article brought to light the importance of protecting the valuable resource of established trees. Tools, techniques and process were explained in the article showing why Milwaukee's program is one of the best in the country. The article was well received by both contractors and public entities concerned about saving established trees during construction.

Paul Biedrzycki, Disease Control and Prevention Manager, Health Dept., Eugenia Hutchins, Driver/Loader, Michael Engelbart, Sanitation Services Manager, Jack Allman, Driver/Loader and Mayor Norquist. Engelbart speaks about the Sanitation Division's cross training to help with necessary projects.

City Departments Collaborate for Combined Attack on Mosquitoes and West Nile Virus

On Friday, July 18, 2003, the City of Milwaukee's Health Dept. and the Dept. of Public Works' Sanitation Division teamed up to demonstrate how departments collaborate to address a health issue that is facing the City of Milwaukee. A press conference was held where Sanitation Driver/Loaders demonstrated how larvicide is dropped in catch basins while collecting garbage. Mayor John O. Norquist, Paul Biedrzycki, Disease Control and Prevention Manager and Michael Engelbart, Sanitation Services Manager spoke on the importance of interdepartmental cooperation. Mayor Norquist said, "Using staff from departments already deployed in the field, such as Sanitation, for the rapid placement of the larvicide only makes good sense from both a budget and logistics standpoint".

This was the second seasonal application of mosquito larvicide in select locations for purposes of reducing mosquito breeding and potential spread of West Nile Virus (WNV). The placement of the larvicide Vectolex occurred in approximately 24,000 catch basins throughout Milwaukee County over the two-week period (July 7–18). Employees from three departments will participate in this year's three applications of the larvicide during the mosquito-breeding season, which typically extends from early May through October. The third Department assisting to distribute larvicide was the Housing Authority for the City of Milwaukee.

Infrastructure Services Division

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Martin Aquino
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Environmental Section

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. Through consolidation and efficiencies, the Division has been reduced by roughly 265 positions over the past 9 years to a level of 992. In 2003, 1,309 Alderman Service Requests were received, a 25% increase over the number received in 2000.

ADMINISTRATION SECTION

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

The Section coordinates accounting functions along with the Department of Public Works Administration Services Division and the Comptroller's Office. The accounting services provided by the Section include establishing projects, recording payments, monitoring costs, and closing project budgets and expenditures for the Transportation Section and Environmental Section in coordination with the Construction Section. In addition, the Section is involved in accumulating, categorizing, recording and reporting operation and maintenance expenditures for the Division. The Section also acts as the accounting resource for tracking and monitoring projects; supports the accumulation of accounting data used in the development and measurement of project estimating and performance; and assists in the development and programming of financial reports for use by managers in the Division.

In 2003, the Section administered Capital Improvement and Grant and Aid Programs in excess of $48.3 million, an Operations and Maintenance budget of over $16 million, and payroll of nearly $23 million. Capital expenditures for the 2003 Sewer program were just under $20 million. The Section processed 315 payments to contractors for sewer capital projects and payments for other City projects. The 2003 expenditures for these contract payments totaled over $38 million. In addition to processing payments and monitoring construction contracts, the Administration Section provides support to other areas of the ISD on financial matters. The Section recorded and monitored expenditures that included payments to contractors, cost of City provided materials used in projects, as well as the salaries and benefits of City employees involved in the planning, implementing, and managing of the projects.

In 2003, Highway Aids in the amount of $24,244,761 were received by the City of Milwaukee. The net expenditures related to DPW-Infrastructure activities, using a 6-year average (based on 2002) of 58.7% applied to this total, resulted in approximately $14,231,670 of aid received. In addition, $584,539 was received for reimbursement of costs incurred in maintaining and operating lift bridges on the connecting highway system program. Also, $1,973,816 was received for Connecting Highways within the City of Milwaukee, reflecting a percentage of actual costs. Administration personnel were involved in the retrieval of information and gathering of support documents to produce the reports necessary to submit requests for these aids.

The Administrative Section 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 Section 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.

The Section also provides support for the day to day operations of the computer systems within the Division and acts as liaison with other computer support areas within the City. This support includes hardware and software maintenance of the 77 GIS/CADD units, 195 general-purpose units and 10 special purpose units within the Division. During the past year, the Section replaced 23 of the GIS/CADD units and 39 general-purpose units for Division users. In addition, hardware was reconditioned, reconfigured, updated and reinstalled for many Division users. This section was responsible for responding to several serious virus attacks upon the Division's systems in 2003. This section generated various ad-hoc reports

from data contained in the Division's data bases, maintained the database system that is used by the Transportation and Construction Sections to administer paving and walk contracts, and helped users deal with process changes caused by changes in other City departments.

ENVIRONMENTAL SECTION

The Environmental Section is financed through the Sewer Maintenance fund and is responsible for the engineering work required for the programming, funding, design and installation of sanitary, storm and combined sewer facilities. The Section is also responsible for preparing plans and specifications for building sewers and water services and maintaining the sewer records. The Section also handles the administration and implementation of the City's two Wisconsin Pollutant Discharge Elimination System permits. This includes reviewing storm water management plans, testing storm system outlets for illicit connections and reporting sanitary to storm sewer crossover activity. In addition, the Section performs activities as part of the infiltration and inflow reduction program on flow monitoring, smoke testing, TV inspections, building inspections and manhole inspections and rehabilitation.

At the start of 2003, the Underground Operations unit moved from the Field Operations Section to become part of the Environmental Section. Underground Operations is also funded through the Sewer Maintenance fund and is responsible for the inspection, maintenance, and repair of the City's sewer mains, manholes, catch basins and storm inlets. The construction and maintenance of the underground conduit system is also performed by Underground Operations.

Following are highlights of the work performed in 2003 by the Environmental Section.

Sewer Design Area

The Section designed and let to contract 0.81 miles of new sanitary sewers, 13.11 miles of replacement sewers and 2.00 miles of sewer lining for a total cost of $25.10 million. These projects included:

West Vliet Street Replacement Sewer

A $645,000 contract was awarded for the construction of a combined sewer in West Vliet Street between North 6th Street and North Dr. Martin Luther King, Jr. Drive. The size of replacement pipe varies from 48-inches to 60-inches in diameter. This sewer will replace an existing pipe that varies from 36-inches to 48-inches in diameter in order to provide adequate hydraulic capacity. This contract included an additional combined sewer relay in North Dr. Martin Luther King, Jr. Drive from West Vliet Street to West Cherry Street, as well as the alley bounded by North 4th Street, North Dr. Martin Luther King, Jr. Drive, West Cherry Street and West Vliet Street.

East Auer Avenue Sewer Project

A $2,030,000 Contract was awarded for the construction of 72-inch diameter combined sewer to replace the existing 60-inch diameter combined sewer located in East Auer Avenue from North Richards Street to North Booth Street. The existing 60-inch diameter combined sewer was constructed in 1925 and was in poor structural condition.

Approximately 907 linear feet of 72-inch diameter combined sewer was built with tunnel section to avoid utility conflicts and to reduce the impact on the traffic flow. This rehabilitation method also minimized surface disturbances and disruption to the area residents.

West Blue Mound Road Project

Contracts were awarded in West Blue Mound Road at various locations between North 50th Street to North 65th Street. These projects were performed to replace structurally and hydraulically inadequate storm, sanitary, and combined sewers in anticipation of a State of Wisconsin paving project in West Blue Mound Road from North Story Parkway to North 66th Street. The combined total of these three projects is $695,090. Approximately 3,300 feet of sewers ranging in size from 8-inch to 36-inch is being relayed.

West National Avenue Project

A $1,237,000 contract was awarded in August of 2003 for the construction of various sizes of combined sewer in West National Avenue at various locations between South Cesar E. Chavez

Drive and South 34th Street. The existing combined sewers were in poor structural condition. This sewer work will provide adequate hydraulic capacity to the service area of the system.

West Dakota Street Lining Project

A $622,000 contract was awarded for the rehabilitation of a 1,050 feet 78-inch diameter combined sewer located in West Dakota Street between South 10th and South 13th Streets. The pipe will be rehabilitated by the cured-in-place liner method.

Storm Water Management Area

Storm Water Management Plan Review

On January 1, 2002, the City adopted a revised storm water management ordinance. Regulations imposed by both the Wisconsin Department of Natural Resources (WDNR) and the Milwaukee Metropolitan Sewerage District (MMSD) are reflected in this ordinance. The ordinance requires that a storm water management plan be submitted to and approved by the City Engineer for construction or reconstruction activities on parcels of land greater than one acre or where there will be a net increase of 0.5 acres of impervious surface. This change has resulted in an approximately 50% increase in the number of storm water management plans being submitted and approved.

In 2003, the Section reviewed 128 storm water management plans, with 117 being approved. To comply with MMSD requirements, 20 of the storm water management plans were forwarded to the MMSD for their review. The MMSD approved all 20 of these plans.

Illegal/Illicit Discharge Testing

Field-testing of storm water outfalls for illegal/illicit discharges continued throughout the City. The dry weather testing consists of a visual and chemical test for pollution at each outfall. The Section performed a total of 593 dry weather tests during 2003. Of these tests, 292 were at the outfall and 301 were at points upstream from the outfall.

The dry weather testing identified two locations as being potential sources of pollution. Dye testing was performed at both locations and a cross-connection was found at one of the locations. No illegal/illicit connections were found at the other dye test location.

Lyons Creek Study

During 2003, the Section completed the initial testing phase of the Lyons Creek study with the assistance of the United States Geological Survey (USGS). This study would determine the effectiveness of storm water pollution prevention information and education (I&E) programs on reducing pollutants in urban streams. A sampling site was located near the intersection of South 55th Street and West Holt Avenue and a control site was established near the intersection of South 18th Street and West Ramsey Avenue. Based on the results of the testing, it was determined, in conjunction with the WDNR, that the two sites were not compatible for the study to advance at this time. The Section, with the WDNR, will be looking for a different sampling site that would be more compatible with the established control site.

Regional Wet Detention Facility

In 2002, a consulting firm was engaged to design a regional wet detention basin to treat storm water runoff from a 165-acre City-developed industrial park on the northwest side. The detention basin will control storm water runoff volume, peak flow, and pollutants entering the Little Menomonee River from the industrial park. A contractor was hired, in 2003, to construct the detention basin on a nine-acre City-owned property located near the intersection of North 91st Street and West Dean Road. Construction was completed during December 2003. Approximately 58,650 cubic yards of earth were excavated to construct the detention basin. The City and the WDNR will share the total project cost of $631,015, which includes engineering and construction.

Infiltration and Inflow Reduction Program Area

Sanitary Sewer Flow Monitoring

A total of 19 sanitary sewer systems were monitored in 2004 for different reasons. The MMSD requested that the City flow monitor along a section of Metropolitan Interceptor Sewer (MIS) which included 10 City sanitary sewer connections (10 systems). The purpose of this monitoring was to determine sources of inflow and infiltration (I/I) entering the MIS. Three systems were monitored due to the number of backwater complaints received during a storm on August 13, 2002. Six other systems were monitored due to a history of backwater complaints. The data was collected from March through December. Flow monitoring data is analyzed to determine the quantity of I/I in a system, flow restrictions, MIS surcharges, and other problems that may lead to backwater complaints and/or overflows.

Sanitary Sewer Evaluation Surveys

In 2003, a contractor was hired to perform dye testing of 263 catch basins and 23,073 lineal feet of storm sewer at various locations throughout the City. The catch basins and storm sewers had previously been identified by smoke testing as potentially leaking into sanitary sewers. The primary tasks of the dye testing were to determine locations and rates of transference of dyed water from the catch basins and storm sewers to the sanitary sewers. The results of the contract will indicate which catch basins, storm sewers, and sanitary sewers can be repaired to reduce I/I entering the sanitary sewer system. The cost of the dye-testing contract was $227,131.

In addition, a contractor was hired to perform manhole inspections in seven sanitary sewer systems that had recently been identified as having excess I/I. The contract was to inspect 436 manholes for lid, frame, chimney, corbel, and barrel defects that contribute to I/I. The results of the contract will be used to identify work items for a manhole rehabilitation contract in 2004.

Manhole Rehabilitation Program

In order to conform to the MMSD's 2010 Facilities Plan goal of reducing infiltration and inflow in sanitary sewer systems, the Section began a sanitary manhole inspection and rehabilitation program in 1998. The inspection phase was completed in 2002. A contract was let in 2003 for the repair of 1,960 sanitary sewer manholes at a cost $1,830,000. The rehabilitation consists of

replacing lids, installing chimney seals and repairing defective brick work in the manholes.

Supervisory Control and Data Acquisition (SCADA) System

A Supervisory Control and Data Acquisition (SCADA) system that provides remote monitoring and control of the City's five lift stations, 83 sanitary bypass pumps and 15 rain gauges is now managed and updated by City staff. The SCADA system allows staff to remotely control the lift stations and bypass pumps if necessary. In addition, it provides real time information on the operational status of each lift station and bypass pump. Rainfall information is also collected in real time and is provided to the Milwaukee Metropolitan Sewerage District for their use.

Automated Mapping and Drafting Area

In 2003 this section drafted a total of 209 sewer engineering plans. This represented an increase of 38 plans over the total of 171 plans drafted in 2002, an increase of over 22%. This was in response to an increase of $2.3 million in the Sewer Capital Improvement Budget, an increase of thirteen (13 percent). This was achieved through additional effort expended in more effectively coordinating Environmental Engineering drafting and engineering functions toward the objective of continuous staff productivity gains.

Building Sewers Area

In 2003 GIS software programming had been completed for placing sewer laterals on the already-digitized sewer main maps. This software will enable this area to progressively retire its hand-drawn sewer plat maps. When these maps are retired, updates can be completed more quickly and accurately and eliminate duplication of effort. In addition, this information will be able to be shared with other City departments through the GIS system.

This area processed 464 permit in 2003, an increase of 7% over the 434 permits processed in 2002. One thousand four hundred and fifty-six (1,456) Deferred Sewer Charge Statements were processed in 2003, an increase of 25 percent (25%) over the 1,166 processed in 2002.

Other responsibilities of the Unit include:

- Provide the Sewer Design Area with street and utility information for new and replacement sewer projects
- Draw sewer construction plans for capital program work
- Assist citizens and plumbing contractors with sewer and sewer lateral questions
- Determine and collect sewer assessment income for the City from new land developments
- Update and provide sewer system plans for design studies and general reference
- Review completed sewer construction reports and update original plans with "as-built" information
- Prepare sewer construction sketches for use at public hearings
- Provide easement plans for sewer construction
- Maintain record retention schedules for sewer construction projects
- Process plumbing and building permits

Underground Operations Unit

Underground Operations

Underground Operation is responsible for cleaning, inspecting and repairing the City's sewers, manholes, catch basins and storm inlets. This includes responding to and investigating complaints of backwater and street ponding. In addition, Underground Operations inspects and repairs sewer and communication manholes, catch basins and storm inlets on streets prior to the paving work being completed.

During 2003, 84.0 miles of sewers were examined, 422.2 miles of sewers were cleaned, and 20,650 catch basins and storm inlets were cleaned. In addition, we responded to 7,934 service calls.

East Side "Compass" is Dedicated on Traffic Island with Assistance from DPW Infrastructure

Public Art is increasingly more visible throughout the City of Milwaukee, especially along the Riverwalk, in neighborhood parks and now on boulevards and traffic medians. The Eastside BID just recently dedicated the "Compass", by artist Gail Simpson, a piece of artwork that stands on the traffic island at the intersection of North Avenue and Cambridge.

The "Compass" sculpture was selected from among many submissions. The submissions were studied by a committee, which included Michael Loughran, Project Engineer, DPW Infrastructure. The sculpture takes the form of a "destination pole" with a spiraling cluster of signs related to the East Side neighborhood's history, i.e. "Oriental Drugs", "Pipkorns", both businesses that resided in the area for a number of years. "Compass" will act as a gateway or landmark for the area, appealing to both drivers and pedestrians. The signs form a helix around a 22' high pole. Loughran provided advice as it relates to the safety of motorists and their ability to not be distracted by the artwork. He also suggested that the artist used one of the poles from the Park East freeway demolition.

Also in attendance at the dedication was Mayor John O. Norquist, Alderman Michael D'Amato, County Supervisor Gerry Broderick and East Side BID executive director Jim Plaisted. The board of directors of the East Side Business Improvement District and the art selection committee sponsored the dedication and the public art project for the BID.

— See photos on adjacent page.—

The "Compass" stands on the traffic island located on North Avenue and Cambridge Street. The signs are interchangeable and will be change from time to time. The signs reflect the history of the neighborhood and its history. Former Milwaukee icon, Dick Bacon is posted and previously lived in the area.

Artist, Gail Simpson, 3rd District Alderman Michael D'Amato and Jim Plaisted, Executive Director, East Side BID #20 at "Compass" dedication.

Michael Loughran, Project Engineer, DPW Infrastructure participated as a committee member for the art selection process. The traffic island on North Avenue and Cambridge is the first in the City to feature public art. Public art stands on several boulevards throughout the city.

In 2003, Underground Operations installed underground conduit in North 84th Street from West Lisbon Avenue to West Hampton Avenue, North Water Street from North Holton Street to East Pleasant Street, and relocated underground conduit in East Kilbourn Avenue and North Prospect Avenue for the Kilbourn Tower development.

Storm Inlets

In order to reduce street debris run-off from entering the rivers and creeks in the City and affecting water quality, sump storm inlets are being constructed in place of the bowl type inlets. The sump catches a large portion of street debris material before it gets in the sewer system and ultimately creeks, channels, rivers and Lake Michigan. This effort is being done to meet the requirements of our Storm Water Discharge Permit issued by the Wisconsin Department of Natural Resources.

Debris Dewatering

As a part of the cleaning of sanitary and combined sewers, catch basins, and storm inlets, Underground Operations is responsible for the disposal of the debris removed. The wet material is currently taken to Waste Management, Inc. or United Water, Inc. for disposal. A study was performed to look at alternative methods to reduce the tonnage of debris by dewatering the material prior to disposal. After considering several alternative methods for dewatering, it was determined that the current method of disposal was the most cost effective.

TRANSPORTATION SECTION

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

The Section inspects and makes recommendations for Capital Improvements for all city maintained bridges and city owned parking structures. It also maintains plans and other records for the city's bridges, parking structures, dams, retaining walls, dock walls, and other structures; designs and prepares contract documents, and performs construction administration for a wide variety of projects involving structures.

The Section is also responsible for administering the city's local street and alley capital paving programs.

Project Programming Area

Administration of the City of Milwaukee's $8.6 million capital paving budget by the Project Programming Unit resulted in approval of 32 street paving and 32 alley projects in 2003, and the award of $1.3 million in contracts.

In 2003, the Project Programming Unit prepared 301 estimates and verified 90 city certified paving projects for improvement in the City of Milwaukee. The formal estimates prepared include 70 street paving projects (8 sponsored by the State of Wisconsin) and 40 alley-paving projects. The verified certificates include 42 street paving projects, of which 20 were sponsored by the State of Wisconsin and 28 alley paving projects.

Project Programming staff appeared before the Common Council's Public Improvements Committee for public hearings on 101 paving, new sewer and new water projects. In addition, resolutions were prepared to authorize construction for approximately 240 non-assessable public improvement projects. Upon completion of the work, the Unit reviews assessments, prepares and issues the associated special assessment bills to property owners affected by the work. In 2003, the unit issued 6,381 bills resulting in $4,315,000 in revenue to the City.

Major Projects Area

The Major Projects Unit coordinated the completion of six Federal and/or State Major Arterial Street projects at a total cost of $10,809,000, of which the City's portion was $1,734,000. The Major Federal and/or State paving projects completed in 2003 include the following:

- The reconstruction of South Howell Avenue from East Oklahoma Avenue to East Wilbur Avenue
- The resurfacing of North Green Bay Avenue (STH 57) from West Villard Avenue to the north city limits.
- The reconstruction of the Green Bay Avenue Bridge over Lincoln Creek.
- The reconstruction of West Capitol Drive (STH 190) from a point north of North 35th Street to North Green Bay Avenue.
- The reconstruction/resurfacing of North Milwaukee Street from East Mason Street to East Ogden Avenue.
- The reconstruction of South 20th Street from West Howard Avenue to West Morgan Avenue.
- The resurfacing of North 84th Street from West Burleigh Street to West Hampton Avenue.

Major Projects, at the request of the Wisconsin Department of Transportation, revised the portion of North 12th Street from West Wells Street to West Highland Avenue for submittal with the first phase of the Marquette Interchange. This was requested due to the rerouting of a major steam tunnel in North 12th Street related to utility work required for the Interchange. Major Projects also worked with Marquette University toward completing the required preliminary engineering requirements associated with a Congestion Mitigation/Air Quality (CMAQ) Grant received from the Wisconsin Department of Transportation (WISDOT) for additional pedestrian lighting, landscaping and other streetscape items in and around the campus area.

Preliminary engineering was in progress for 16 Federal and/or State Aided Major Street paving projects, 19 Local Bridge Replacement Program projects and two State Trunk Highway Bridge Replacement/Rehabilitation Projects.

Working with Federal, State, County staffs and private consultants, the unit continued the process to remove the Park East Freeway. The project involves the removal of the existing freeway and replacement with an at-grade roadway facility and a new movable bridge over the Milwaukee River at a total estimated cost of $25,000,000. The first construction contracts were let in 2002 and the work is progressing for an overall project completion in the spring of 2004. This unit continues to work with City and County staff in developing the redevelopment plan and streetscaping work for the lands formerly occupied by the Park East Freeway.

Major Project's staff also coordinated the City's efforts to assist the Southeast Wisconsin Regional Planning Commission in their preparation of the Transportation Improvement Program (TIP). This program is part of the Statewide Transportation Improvement Plan, which involves not only transportation planning efforts but also analyzing whether the State's air quality will meet future goals. This major effort involves compiling and updating project information on all Federal/State aided projects proposed for the TIP period.

As one of the City's major liaisons with the WISDOT, the Major Projects Unit was involved in several major efforts in 2003. These include the planned reconstruction and extension of West Canal Street in the Menomonee Valley. Agreements were negotiated with the WISDOT to partially fund this major street improvement in the Valley, which in addition to providing an alternate route for traffic during the reconstruction of the Marquette Interchange, will open up the Valley for development.

The unit is also working with the WISDOT in their efforts to design and coordinate work on the Marquette Interchange. This multimillion-dollar project will have a significant impact on the City, its citizens and its facilities.

In 2003, this unit again coordinated work undertaken with a WISDOT grant under the Local Roads Improvement Program (LRIP). This grant provides 50% State funds for construction work on City local streets. In 2002-2003, the City's entitlement was $1,067,000.

Major Projects is working with the Wisconsin Department of Transportation (WISDOT)

Ms. LaVerne Hermann, member of the Milwaukee Safety Commission, endorses the Pedestrian Flag program and said it would be good for the elderly shoppers.

Norquist, D'Amato, Downer Avenue Merchants, MPD Safety Division Introduce Unique Pedestrian Friendly Program

Pedestrians and vehicles traveling on Downer Avenue will notice something different as they approach the mid-block of Downer Avenue between Park Place and Belleview Place. There they will find a crosswalk and a pole with a container of red flags on each side of the street introducing a unique concept to Milwaukee, the Pedestrian Flags. The Pedestrian Flags is a program designed to create additional safe walking areas in Milwaukee, especially in high traffic areas.

The Downer Avenue Merchants' Association has "adopted" the mid-block crosswalk to assist the numerous shoppers in their area to cross the street legally mid-block. The Association has worked with Alderman Michael D'Amato and Jim Ito, Chief Traffic & Lighting Engineer of the Department of Public Works, to move the idea forward. By "adopting" the designated crosswalk, they agree to keep a supply of flags there for people crossing the street.

To launch the Pedestrian Flag program on Downer Street, the Department of Public Works worked with Pamela Roberts,

Alderman Michael D'Amato, Pamela Robert, MPD Safety Director, and Mayor Norquist. Roberts speaks about the importance of pedestrian rights.

Director of the Safety Division of the Milwaukee Police Dept. to help educate the merchants about the program. The Safety Division distributed information on "How to Use Crosswalk Flags" and the rights and responsibilities of pedestrians and motorists.

On the day of the launch, Mayor Norquist, Alderman Michael D'Amato, Downer Ave. merchants, Tom Vaughn and Gil Rasmussen, City Engineer Jeff Polenske, and Jim Ito, DPW Traffic, met at the crosswalk. Members of the Milwaukee Safety Commission, and staff from the MPD Safety Div., including Safety Director Pamela Roberts were also in attendance to announce the beginning of the pedestrian flag project.

Ms. LaVerne E. Hermann, a long-time Safety Commission member, spoke of the need for motorists to respect the rights of pedestrians and the need for more areas where pedestrians can cross the street safely. She noted that elderly citizens are walking more and driving less, and hoped that more of these type of crosswalks will become available.

Downer Ave. merchant, Gil Rasmussen, Mayor Norquist and LaVerne Hermann using the pedestrian flags to cross on Downer Ave.

in their efforts to rehabilitate 4.5 miles of North 76th Street (USH 181). Construction is scheduled for the spring/summer of 2005 for the portion from West Florist Avenue to West Clinton Avenue and for the spring/summer 2006 for the portion from West Clinton Avenue to West County Line Road.

In 2004 the Major Projects unit will be combined with the Planning and Development unit under the direction of the Chief Planning and Development Engineer. A new Civil Engineer IV in lieu of the Major Projects Manager will assist in operations of the unit.

Structural Engineering Area

The structures unit inspects and makes recommendations for Capital Improvements for all city maintained bridges and city owned parking structures. It also maintains plans and other records for the city's bridges, parking structures, dams, retaining walls, dock walls, and other structures. The unit designs and prepares contract documents, and performs construction administration for a wide variety of projects involving bridges, retaining walls, parking structures, and other structures. In 2004 this area will be moved to the Field Operations Section which will combine Structural Design and Analysis with Structural Maintenance functions under one manager to facilitate better coordination and continuity in addressing structural infrastructure of the City of Milwaukee.

Bridge Design and Construction

The Green Bay Avenue bridge deck replacement over Lincoln Creek was let to contract with construction started in May of 2003 with project completion in December of 2003. The bridge was constructed in two stages to minimize traffic disturbance.

Final plans and specifications for the deck replacement of the South 27th Street Bridge over Union Pacific Railroad were completed, Zenith Tech Inc. was awarded the construction contract. Rehabilitation of that bridge is to be completed in 2004. Final plans and specifications were sent to WisDOT for contract letting of the deck replacement of the North Farwell Avenue over the Milwaukee County Bike Trail for construction in 2004.

The State Street Bascule Bridge was designated a Historic Structure and preliminary plans were developed by this unit to rehabilitate the bridge and restore the aesthetic features that drove the historical designation. The State Street Bascule Bridge is the oldest remaining Milwaukee style trunnion and was the first bridge in the city to exhibit architectural features to enhance the bridge aesthetics. These features include copper clad bridge houses and ornamental bridge railing. An in-depth investigation of the structural and electrical items was prepared and preliminary plans developed by this unit. A Request for Proposal was prepared to select an outside consultant to prepare final plans and specifications. Rehabilitation of the bridge is to be let to contract at the end of 2004.

Final contract plans and specifications for the North Ave. Dam Pedestrian Bridge over the Milwaukee River were reviewed by this unit and the contract was awarded. Construction started in fall of 2003 with completion of the new bridge expected in spring of 2004. The new pedestrian bridge will connect new housing developments along River Boat Road with Caesar's Park and proposed walking paths along each side of the mud flats along the Milwaukee River.

A Request for Proposal was prepared, consultants were interviewed and selected, plans and specifications were reviewed, and a construction contract advertised for the new Marsupial Pedestrian Bridge over the Milwaukee River. The new cast-in-place post-tensioned concrete pedestrian bridge will be hung via high strength steel cables from under the existing Holton Street Viaduct and will connect the Brady Street Business District with new housing developments along Commerce St. and the redeveloped Kilbourn Park. The bridge will incorporate architectural enhancements, projection and recessed rail lighting, and plaza areas at each landing to provide an enjoyable and safe experience for pedestrians and cyclists.

Final plans and specifications for the redecking of the Hawley Road Viaduct are currently being worked on to be submitted to WisDOT for construction starting in 2005. Plans and specifications were also finalized for the rehabilitation of the 35th Street Bridge over Lincoln Creek. Construction for this bridge is to commence in 2004 with the bridge opened to traffic by the end of the year.

Construction of the new Knapp St. Lift Bridge continued in 2003. The new bridge is located one block north of Juneau Avenue in place of the elevated Park East Freeway bridges over the Milwaukee River. The bridge connecting a new widened West McKinley Avenue to

East Knapp Street is scheduled for completion in the spring of 2004.

Final plans and specifications were let to contract for a remote control bridge operating system to allow operation of the St. Paul Avenue Lift Bridge over the Milwaukee River from the Michigan Street Bridge. Construction started in late summer of 2003 and full operation of the bridge is expected to be completed in spring of 2004.

This unit worked with staff from Buildings and Fleet, Bridge Maintenance, and Communications to provide a contract for card access to the City moveable bridges. Access via key cards will provide greater security, eliminate misplaced keys, and will be able to record the identity of all staff with access to the bridges.

A proposal to install a Roadway Weather Information System (RWIS) and camera system was reviewed and coordinated for installation at the new 6th Street Viaduct. The RWIS will allow information received from pavement sensors installed in the bascule bridge slab and the 6th and Canal St. intersection, along with video feed from the cameras, to be relayed to the control room of Sanitation Division for monitoring the effectiveness of the City's winter salting operations. Information from the sensors and video feed will also be made available to WisDOT via the Internet.

Preliminary engineering was started for the rehabilitation of the West Bradley Road Bridge over the Little Menomonee River, the Highland Boulevard Bridge over the Canadian Pacific Railroad, the West Mill Road Bridge over the Menomonee River, and the South 29th Street Bridge over the Union Pacific Railroad.

Bridge Inspection

Numerous bridge inspections were performed during 2003 in accordance with mandated Federal and State requirements. Twenty-six (26) in-depth fracture critical bridge inspections were performed along with generating drawings identifying each fracture critical member. The 35th Street Viaduct alone has 74 fracture critical members. Inspection of the City's moveable bridges is now a yearly requirement and twenty (20) separate moveable bridge inspections were preformed. Thirty-four (34) interim bridge inspections were also performed for those bridges that require a more frequent inspection than the mandated minimum bi-yearly routine inspection.

Federal and State regulations require underwater dive inspections be performed every five (5) years on all bridge foundations located in waterways in which the bottom of the footing is not visible or located by probing. A Request for Proposal was prepared, consultants were interviewed, and a contract issued for the underwater dive inspections of twenty-seven (27) bridges including riverbed sounding profiles. Final reports were reviewed and submitted to the State to satisfy bridge inspection regulations.

A bridge inspection was performed on an old timber and steel vehicular bridge over Canadian Pacific Railroad in the Menomonee Valley that was acquired with the purchase of land from CMC for the proposed Canal Street extension. The inspection revealed the bridge was structural deficient and was immediately closed to traffic. The bridge will be removed and replaced with a new bridge as part of the Canal Street extension project.

This unit researched and replied to a WisDOT inquiry of overburden reporting and affect on the load rating for twenty-six (26) City bridges. As a result of the inquiry, load-rating analysis commenced for several bridges.

Load rating analysis was also performed on the West Becher Street Bridge over the Kinnickinnic River, Teutonia Avenue Bridge over Lincoln Creek, West Mill Road over the Menomonee River, and North 91st Culvert over the Little Menomonee River.

Parking Structures

Final plans and specifications were prepared and a contract was let for painting of the 4th and Highland Parking Structure and miscellaneous railing at the 2nd and Plankinton Parking Structure. This unit also provided contact administration and coordination for this project.

Analysis and design of restoration repairs to a deteriorated concrete corbel at MacArthur Square Garage was performed. Plans and specifications were issued to contract and repairs were made. This unit assisted in selecting a consultant for a contract to evaluate the concrete slabs for the application of a traffic deck waterproof membrane for the 2nd and Plankinton Parking Structure. Plans and specifications were reviewed with a contract scheduled to be let in spring of 2004.

This unit started the bi-annual inspections of the City owned parking structures. 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, a Capital Improvement Program was recommended to Parking Administration.

Miscellaneous Structures

Contract documents were prepared and the contract let for the Phase 2 construction work related to the Kilbourn Park extension to North Commerce Street. The Phase 2 work consisted of a soldier pile, precast concrete lagging retaining wall with bridge type railing along Glover Street, a cast-in-place concrete retaining wall adjacent to the bike path, and a concrete amphitheater seating area. A pedestrian stair at the end of Booth Street was also included in the bid package and will create a direct pedestrian access to North Commerce Street. The Phase 2 construction work is expected to be completed in spring of 2004.

As part of the continued development related to the Beerline B Improvement District, plans and specifications were developed for two (2) concrete cast-in-place retaining walls. The first retaining wall is located along the north side of Commerce Street and will allow extension of the Beerline Bike Trail. The second retaining wall is located along East Reservoir Avenue and will allow extension of that street for access to a new housing development. Work for both of these projects started in fall of 2003 with completion expected in spring of 2004.

Plans were developed for the replacement of a concrete topping slab and waterproof membrane for a city owned, underground signal and street lighting vault at the corner of 6th and Kilbourn Avenue. A structural inspection, analysis, estimate, contract, construction coordination, and inspection were performed for work on this electrical substation.

This 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 all contracts, plans and specifications, construction budgets, change orders and payments, shop drawings and construction field reports for the Riverwalk development. The following riverwalk projects had activity in 2003.

The dock wall and riverwalk for the Trostle Square residential development along N. Commerce Street was completed. The Phase 1 River Homes riverwalk in the Beerline B Redevelopment project area was completed with the Phase 2 work expecting to be completed in spring of 2004. The Kilbourn Landing/Milwaukee Rowing Club riverwalk and site development was completed in the fall of 2003. The Phase 1 riverwalk for the River Bridge residential project along N. Water Street was completed with Phase 2 expected completion in 2004. The first phase of the Historic Third Ward Riverwalk on the east bank of the Milwaukee River from St. Paul Avenue to Water St. was completed. The Milwaukee Institute of Design Riverwalk between Water Street and Broadway on the east bank of the Milwaukee River was also completed. Final plans and specifications were reviewed for the final phase of the Historic Third Ward Riverwalk that will fill in the gaps of the original riverwalk caused by extended property owner negotiations. Riverwalk construction work was also started in 2003 for the Waterfront Lofts residential development on the west bank of the Milwaukee River.

Structural analysis was performed for various repair and construction projects including bridges, hollow walks, public buildings, firehouses and bridges with overload vehicles. The following is a summary of some of those projects. A structural analysis was performed for the existing 8th floor of City Hall for its ability to support a proposed new document storage area. Structural inspection and estimate was provided for renovation of a concrete T-beam floor system for Fire Engine House No. 2. Structural analysis was provided on the floor system of Fire Engine House No. 27 to assess its capability to carry heavier fire fighting vehicles with varying positioning of those trucks. A structural report for the Critical Inspection of the City Hall Fire Escape was formally submitted to the Department of Neighborhood Services. Analysis of bridges by this unit for permit overload vehicles has increased almost two fold in recent years as the numbers of permit applications and enforcement has increased.

Planning and Development Area

This unit provided technical assistance to the Southeastern Wisconsin Regional Planning Commission with regard to the Transportation Improvement Program, the Regional Freeway Reconstruction Study, an amendment to the Regional Bicycle and Pedestrian System Plan, and the Kenosha-Racine-Milwaukee Corridor Transit Alternatives Analysis (a.k.a. WISERIDE).

Activities also included providing plan review and utility coordination to the Wisconsin Department of Transportation (WISDOT) on freeway maintenance projects, on the improvement of the ramp metering, variable message signing, and vehicle detection systems phases of MONITOR (The Freeway Traffic Management Plan), and on various freeway bridge rehabilitation projects.

In conjunction with reconstruction/resurfacing activity on the Freeway System within Milwaukee County, traffic mitigation plans for local streets were developed and implemented to minimize the impacts of traffic diverted from the freeway system during construction. Local street traffic mitigation plans include changes in traffic signal timing and other operational adjustments, as well as designs and implementations of signing and pavement markings to change traffic flow patterns and regulate local street traffic

Assistance was provided to the WISDOT with regard to traffic mitigation and administration during the resurfacing of the Milwaukee Freeway system along IH-894 from the Belton Overpass to the Mitchell Interchange. Assistance was further provided on the Intermodal Passenger Facility location study; the alternatives study and preliminary engineering for the Marquette Interchange; the application of Intelligent Transportation System technology (ITS) in the Gary-Chicago-Milwaukee (GCM) Corridor; a study of incident management on southeast Wisconsin's freeways (TIME); the implementation and testing of an Integrated Corridor Operations Program (ICOP); and on the Local Roads & Streets Council (LR&SC), an initiative to better coordinate and create a more efficient relationship between local jurisdictions and the state Department of Transportation. This unit also participated in the WISDOT Marquette Interchange Mitigation Advisory Committee, the Transit and Travel Demand Management Subcommittee, and the Local Roads Subcommittee and prepared numerous traffic mitigation proposals designed to maintain mobility during reconstruction of the Marquette Interchange.

In November, 2003 the Wisconsin Department of Transportation approved a $20 million traffic mitigation program for the reconstruction of the Marquette Interchange. Due partially to efforts by members of this unit, funding of approximately $94,000 was established for installing emergency vehicle signal preemption on main alternate routes, approximately $923,000 was established for local intersection improvements necessary during the reconstruction, approximately $740,000 was established for the retiming of traffic signals during the various stages of construction and approximately $1.1 million established for an enhanced traffic signal communications system in areas affected by the construction.

The unit coordinated projects being completed under the Congestion Mitigation and Air Quality (CMAQ) Program, the Statewide Multi-Modal Improvement Program (SMIP), and the Transportation Enhancement (TE) Program, all of which were continued under the Transportation Equity Act for the 21st Century (TEA-21), as well as the Transportation Demand Management (TDM) Program. These programs generally provide up to 80% Federal and/or State funding for eligible projects.

During 2003, the unit prepared a Request for Proposal (RFP) for the design of a CMAQ funded Summerfest Shuttle Bus Parking Management System. This system will provide information to drivers headed for Summerfest about available parking in garages located near the shuttle route in the downtown area. It is hoped that this initial deployment will spur the development of a more comprehensive downtown parking management system

Data collection and preparation of computer model inputs continued for several computerized signal optimization projects, which utilize CMAQ grants. Included were studies of the Milwaukee central business district, the near south side, and the West Appleton Avenue/West Lisbon Avenue signal system.

The unit was involved in several bicycle related projects in 2003. The City of Milwaukee Publicity Plan was completed by the Bicycle Federation of Wisconsin (BFW) under a contract with

the City. The Bicycle Publicity Plan project was funded by a Transportation Demand Management grant. The plan includes various advertising schemes, including a public service announcement (PSA). The BFW is investigating how to get the PSA aired on the local television stations in 2004.

The unit continued its efforts in implementing the City's Bike Rack Assistance Program. This program, funded by a Transportation Enhancements (TE) grant, provides local business with free bike racks. In 2003, City forces installed new bike racks in several local business districts, including downtown, East North Avenue, Brady Street, Riverwest, University Square, and Walker's Point. To date, over 750 free bike racks have been distributed since 2000. The unit will continue to promote the program in 2004.

In 2003, the City retained the BFW to undertake two bicycle related planning studies. The first is the Evaluation, Selection, Designation and Spot Improvements of Bike Routes. This project, funded by a CMAQ grant, involves the evaluation of the City's current bicycle route system and makes recommendations as to additions to the system and proposed improvements, particularly providing bike lanes. This project will be complete in early 2004. The BFW was also retained to undertake the Off-Street Bikeway Study. This project, funded by the STP-Discretionary program, involves the evaluation of off-street corridors that potentially could accommodate a paved bike trail. This project will continue through 2004.

In 2003, this unit worked to finalize the acquisition of the former Union Pacific Railroad right of way between South 6th Street and East Washington Street. This project, funded by a CMAQ grant, will result in a paved bicycle trail, known as the Kinnickinnic River Trail. Engineering will take place in 2004.

In 2003 construction began on two segments of the Beer Line "B" Bicycle Trail. The first segment between East Pleasant Street and North Humboldt Avenue is funded by a CMAQ grant, and the second segment between North Humboldt Avenue and the North Avenue Viaduct is funded by a TE grant. Both projects will be completed in 2004.

Two more bicycle related STP-Discretionary projects were approved by the Common Council in 2003. They are Update and Distribute City Bike Map, and Update City Bike Plan. This unit will work to implement these two projects in 2004.

In 2003, this unit worked to retain consultants for the Marsupial Bridge project. The design team of Bloom Consultants and LaDallman Architects produced plans and specifications for this project, which allowed us to advertise for bids by the end of 2003. This project, funded by a CMAQ grant, will be under construction in 2004. The Marsupial Bridge will be a bike/pedestrian bridge suspended beneath the Holton Street Viaduct.

In 2003, this unit worked to get bicycle lanes marked on South Kinnickinnic Avenue between East Oklahoma Avenue and East Maple Street, and on South Howell Avenue between East Wilbur Avenue and East Oklahoma Avenue.

This unit continued to provide membership and staff assistance to the City's Bicycle and Pedestrian Task Force. The Task Force was active in 2003 fulfilling its mission to recommend to City policy makers ways to make the City of Milwaukee more bicycle and pedestrian friendly.

During 2003 this unit was very active in the planning and implementation of several off-road bicycle trail segments. This unit continues to work in a cooperative effort with the DNR to implement remaining segments of the Hank Aaron State Trail (HAST). During 2003 this unit negotiated responsibilities between the City and DNR to implement three segments of the HAST – the North 44th Street segment (Doyne Park to Miller Park), the CMC/CP segment (Miller Park to North 25th Street), and the Canal Street segment (Emmber Lane to North 6th Street). These projects are funded primarily with CMAQ grants previously secured by this unit. Furthermore, this unit provided technical assistance to the DNR to secure an additional CMAQ grant for the construction of a bike ramp structure from the 6th Street Viaduct down to grade along the south bank of the South Menomonee Canal and trail connection to Pittsburgh Avenue. Much of the work on the HAST is anticipated to begin in 2004 in conjunction with the Canal St Paving through Menomonee Valley. Furthermore, CMAQ funding was secured for the Kinnickinnic River Bike Trail on abandoned Union Pacific Railroad Company right-of-way between South 6th Street at West Rosedale Avenue and East Washington Avenue and for the Beerline "B" bicycle trail between East Pleasant Street and East Humboldt Avenue. A substantial portion of the right of way was secured on the KK segment in 2003 and a short segment of the Beerline "B" trail was constructed in 2001. A Transportation Enhancement grant was obtained to extend the Beerline "B" trail to East North Avenue. Right of way acquisition was commenced in 2003 and engineering is expected to be completed with construction starting in 2004.

This unit continues participation in a study of downtown transit improvements known as the Milwaukee Downtown Transit Connector Alternatives Analysis. This study, sponsored by the City, Milwaukee County, the Metropolitan Milwaukee Association of Commerce and the Wisconsin Center District, is investigating alternative downtown transit improvements linking multiple tourist and business venues. The Alternatives Analysis and draft Environmental Impact Statement are expected to be completed during the fall of 2004 with Preliminary Engineering commencing shortly thereafter.

In 2003, this unit coordinated the writing and submission of six applications under the Congestion Mitigation and Air Quality (CMAQ) Program. In late 2003 the City was awarded four of the six grants totaling around $6,000,000 including over $4,000,000 for continued improvements on the Downtown Pedestrian Corridors project, and around $700,000 on each of N Holton Ave and W Greenfield Ave. for pedestrian and bicycle improvements.

In 2003, this unit developed conceptual plans and cost estimates for the Canal Street Reconstruction/Extension project in the Menomonee Valley. This project includes relocation of an existing railroad spur within Canal Street, reconstruction of West Canal Street between North 6th Street and North 25th Street on the existing alignment, construction of a new roadway from North 25th Street to Miller Park through the west end of the Menomonee Valley and construction of portions of the Hank Aaron State Bike Trail. This project is expected to provide a catalyst for redevelopment of the Menomonee Valley as well as provide an alternate traffic route during reconstruction of the Marquette Interchange. A Request for Proposals (RFP) was issued to secure consultant services for engineering and plan preparation for the project with input provided by numerous partners and stakeholders. Engineering commenced in early

2003, with construction expected in 2004.

In 2003, this unit provided technical assistance to the Mayor's office in the development of alternative configurations for the Marquette Interchange that attempt to achieve project goals in a more cost effective manner as compared to the alternative currently being pursued by the WISDOT.

In 2001, this unit coordinated the writing and submission of eight applications under the Congestion Mitigation Air Quality grant program. In 2002 the City of Milwaukee was awarded in excess of $ 9,400,000 in Federal funds ($11,800,000 total projects cost) for six initiatives, including Way Finding signage, Marquette University campus amenities, the Marsupial Bridge project (a pedestrian and bicycle facility hung beneath the Holton Street viaduct) and $ 6.0 million in additional federal funding for the Downtown Pedestrian Corridors project. CMAQ grants totaling nearly $ 5.0 million were previously received for the Corridors project to implement intersection treatments, plantings, art work, and other street amenities along major downtown pedestrian corridors. A contract was completed in late 2003 for a demonstration project to improve a portion of West Wisconsin Avenue. The Marquette University work was substantially completed in 2003 and a Request for Proposals was issued in late 2002 to secure professional services for the Marsupial Bridge project which was let to contract in 2003.

In 2003, this unit made application for and was awarded a Hazard Elimination Safety grant in the amount of $510,000 for the purpose of reconfiguring the East North Avenue curve between North Holton Street and North Humboldt Boulevard. Engineering for this initiative was started in 2003.

Traffic count data was collected under a grant provided by the Wisconsin Department of Natural Resources through the WISDOT to meet travel-monitoring requirements for the Southeastern Wisconsin Ozone Non-attainment area.

During 2002 and 2003 this unit in conjunction with members of the Summerfest staff and the Milwaukee Police Department designed and oversaw the installation of a new traffic control system on E. Erie St. for a reversible traffic lane pattern used during the end of the day egress of Summerfest crowds. This system included the installation of a cost effective but more visible overhead sign message display that could be removed following the festival so as to be less visually and aesthetically obtrusive.

During 2003 this unit continued its role as liaison with the various railroad entities doing business in the City in matters of crossings, structures, and right-of-way improvements.

The unit coordinated Infrastructure Services Division and Department of Public Works activities for several major development projects, including Kilbourn Tower, The Boardwalk (Metro Center), St. Lukes Regional Medical Center, the Milwaukee Art Museum Expansion, Trostel Square, Humboldt Ridge, Brewers Hill Commons, Warren Manor, Marquette University, Highbridge, River Bridge, the Humboldt Yards Redevelopment, Phase II of the Cherokee Point Subdivision, and the Pabst City redevelopment project. Other development projects include the Third District Police Station, Reed Street Yard Redevelopment, Lakeshore State Bank, USF Holland, and the Midtown Retail Center at the site of the former Capitol Court Shopping Center. This unit also participated in several predevelopment roundtable conferences with DCD in which DPW's comments and concerns were identified at an early stage in the development process.

The unit worked closely with several Business Improvement Districts (BID's), Tax Incremental Financing Districts (TID's), and General Planned Developments (GPD's). Major developments include the East North Avenue (East Side BID) streetscape improvements; the Brady Street (BID 11) plaza along the Holton Street Bridge; Avenues West (BID 10) streetscape improvements; the Beerline "B" (TID 22) Vine Street Stairway and the design and construction of Kilbourn Park and the Park Place GPD work, including the construction of North Liberty Drive. This unit also worked closely with the Menomonee Valley Partners business group in their planning efforts including participation in a National Design Competition for the "Green Development" of the former Milwaukee Road Shops site. The results of this competition were integrated into the design initiatives for the extension of W Canal St from about 25th St to Miller Park.

This unit continues to assist the Department of City Development with the expansion of the Riverwalk system, including planning for roadway and streetscape improvements to complement the adjacent riverwalk. Work continued in 2003 on planning of a southerly extension of the Riverwalk system into and through the Historic 3rd Ward as well as a Riverwalk extension north of West Pleasant Street along the Beer Line "B" redevelopment area to the former North Avenue Dam including a new pedestrian bridge across the former dam weir connecting the Beerline "B" area to Caesars Park on the east side of the River. Construction also commenced in 2003 on a number of Riverwalk segments along the east side of the Milwaukee River extending from Clybourn Street to Broadway in the Historic Third Ward, as well as a number of segments along the Beerline "B".

This unit is responsible for the Division's review of various permits, specifically as the proposed work relates to the public's use of the right-of-way. This includes utility permits, building permits, and DPW excavation permits. The unit also reviews applications for special privileges and air/subterranean space leases, and writes resolutions for Common Council action.

During 2003 this unit 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. This unit also continued to provide public service assistance to our citizens by investigating a variety of traffic, roadway, and railroad grade crossing condition complaints, and private drainage complaints.

Over 600 weekday or weekly traffic counts were taken on arterial streets, at key count stations, and at other locations on an as-needed basis. Continuous count stations (key counts) are operated by the City at 24 permanent installations at selected arterial locations throughout the City. Seven-day counts are extracted on a monthly basis to monitor travel patterns in the City. Various manual traffic counts and speed checks are performed by unit staff in response to new development proposals, site access management, traffic complaints, and requests for additional traffic control.

Technical assistance, including testimony at public hearings and meetings, was provided to other City agencies and organizations, including the Bicycle Task Force, the Railroad Commission, the Menomonee Valley Partners Infrastructure Committee, the City Plan Commission and the Board of Zoning Appeals. This unit participates with the Department of City Development, the Department of Neighborhood Services and the Board of Zoning

Appeals in the Zoning Administration Group (ZAG) to provide consistency of review and timely processing of the special use/variance cases referred to us. In 2003, this unit continued to provide technical assistance to the Board of Zoning Appeals (BOZA). This unit provides membership to the Zoning Administration Group (ZAG), which provides comprehensive and timely reviews of special use and zoning variance requests in front of the Board. In 2003, approximately 650 new requests were submitted to the Board office and reviewed by the ZAG. This unit also provides staff at each BOZA meeting to present the DPW report on cases in front of the Board. In 2003 there were 14 BOZA meetings. This unit also provides technical assistance to the City Plan Commission with regard to DPW concerns on proposed General and Detailed Planned Developments, as well as proposed zoning changes. Both written comments and oral testimony are provided to the City Plan Commission in 2003.

This unit also participates in three subcommittees of the Local Roads and Streets Council – the Education and Communication subcommittee, the Infrastructure Management subcommittee and the Regulatory, Environmental, and Legislative (REAL) subcommittee. This unit also represents the City's interests in promoting and deploying intelligent transportation technology regionally as a representative on the Gary-Chicago-Milwaukee ITS Corridor Deployment Committee and statewide as a member of the Wisconsin ITS Alliance.

In 2003, this unit continued the implementation of the Pavement Management Administration (PMA) system, which provides a computerized method for evaluating and comparing the characteristics of more than 19,000 segments of the City's paved roadways. Based on information obtained in 2000 and 2001 through a Visual Pavement Condition Evaluation Survey, the PMA was re-calibrated to accurately reflect the present condition of our streets and to predict the rate at which our roadways will deteriorate. This system provides data for preparation of the annual capital paving budget and the annual and long range local and major streets paving programs. This system also assists us in biennial reporting for the Wisconsin Inventory of Streets and Local Roads as required by the WisDOT.

During 2004 the Planning and Development Unit will combine with the Major Projects Unit as part of the ever evolving restructuring of the Infrastructure Services Division and Transportation Section. We will work closely with other City, State, County, Federal, and private entities in continue improvement and maintenance of our arterial street and bridge infrastructure with the given resources and funding programs at our disposal. We will also work similarly in implementing streetscape enhancements under the CMAQ program along North Holton Avenue and along West Greenfield Avenue, in coordinating efforts in the acquisition of and conversion to recreational corridors of former rail right-of-ways along the KK River/Chase Avenue corridor on the south side and along the Beerline north from East Chambers Street to North Holton Street on the north east side, construction of the Marsupial Bridge Project (a pedestrian & bicycle facility hung below the Holton Street Viaduct) and construction of a pedestrian bridge across the former weir at the North Avenue Dam site, extension of a Riverwalk system in the Historic 3rd Ward, final design and construction of Canal Street from 6th Street to 26th St and final design of Canal St from 26th St to Miller Park, redevelopment of the Menomonee Valley, reconfiguration and redevelopment of the Park East Freeway Corridor, implementation of various mitigation elements as well as infrastructure modifications included in the rehabilitation of the Marquette Interchange, continued evaluation of alternatives for upgrading the regional freeway system, implementation of ($5,000,000.00) in streetscape improvements and the programming of another ($ 7, 500,000) of improvements on West Wisconsin Avenue, North Water Street and West Kilbourn Avenue, continued evaluation of alternatives in the Downtown Connector Study, and coordination of large outlying developments such as St. Lukes, Granville Station, Columbia-St. Mary's and the Metro Center. New initiatives will commence on dynamic parking control and information, bicycle facilities, pedestrian mobility, and market strategies geared at continued enhancement of the central and surrounding business districts. This unit will also work closely with the WISDOT on continued study involving Freeway Traffic Management and in evaluating a pilot program to integrate signal systems of complementary arterial and freeway corridors.

Traffic and Lighting Area

As part of the City's Capitol Improvement Program, plans were prepared for street lighting alterations and upgrades that were to be done in conjunction with 21 paving projects. Lighting work done in conjunction with these projects included the installation of overhead circuitry prior to construction to maintain adequate lighting levels during construction, protecting and adjusting facilities during construction work, and where required, the installation of new street lighting cable and the upgrade of electrical circuitry and components.

In 1987, an initiative was begun to convert all mercury vapor and incandescent street lighting in the City of Milwaukee to more energy efficient high-pressure sodium lighting. In 2003, a total of 1,450 streetlights in the City were converted to high-pressure sodium lighting. With this work, approximately 90 percent of the 67,065 streetlights in the City of Milwaukee have now been converted to high-pressure sodium. Replacement of obsolete electrical circuitry also continued under the street lighting Capital Improvements Program. Circuitry to approximately 683 lighting units was replaced Citywide in 2003. With this work, circuitry upgrades have now been completed on over 56 percent of the City's street lighting system.

Historic Milwaukee lanterns and harp lights continue to be installed in conjunction with streetscape, redevelopment and neighborhood and business district beautification projects. In 2003, grant funds, special assessment or private funding was used to provide historical lighting as part of the neighborhood and business district improvement projects. Examples of projects completed this year are West Wisconsin Avenue from North 11th Street to North 16th Street and North Milwaukee Street from East Mason Street to East Kilbourn Avenue.

Engineering was completed and work was begun in 2003 for the installation of Milwaukee lanterns and harps in conjunction with the streetscaping of the reconstructed Park East Freeway corridor west of the Milwaukee River. Work will continue in 2004 on remaining roadway segments within the corridor.

Engineering for street lighting was also completed for the first stage of construction with the Marquette Interchange

Reconstruction Project, and was initiated for subsequent construction stages as this project progresses. Improvements to street lighting facilities on City streets in conjunction with this project will include upgrade to Milwaukee harps and lanterns on all roadways within the project limits.

In 2003, work was also begun on the replacement of the City's Master Street Lighting Control System. The current system, which was developed using World War II era technology, is used to turn the street lights on and off. A request for proposals was issued in late Fall, and a Consultant was selected to assist in the design of the new control and supporting communications systems. Deployment of the first test segment is anticipated in mid-2004. In addition to more reliable, effective and efficient control of street light burn times, the new system will provide quicker notification to repair crews of system outages, thereby improving response to circuit troubles and area lighting outages.

Central Drafting and Records Area

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

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

In 2003, 27 plans and petitions for the vacation of public ways were processed. The Unit also processed 3 subdivision plats and 105 certified survey maps, produced 224 paving plans for 75 separate paving projects, 9 structure projects and 6 state paving projects, and acted upon 45,880 requests from Diggers Hotline to locate the city's underground electrical and water main facilities.

Electrical Facilities Digitizing Project

The Central Drafting and Records Section maintains and distributes records of underground conduit, street lighting and traffic signal facilities to the appropriate design, field operations and digger's hotline personnel. Current work processes based on a combination of paper and digital records have not kept pace with the volume of changes that occur. During 2002, the existing work processes were examined to determine where the system short falls exist, and users were interviewed to obtain first hand knowledge of how the system operates and what can be done to improve it.

A considerable amount of mapping has been done over the years using microstation. Some data files exist that track inventory. There is value in linking mapped information with data files as it will allow information to be quickly utilized (i.e. inputted, reviewed, updated, displayed, distributed and analyzed). To this end, GeoMedia Pro software is being examined to determine if this is the best way to link existing mapping and data information as well as being the appropriate tool for future growth and applications.

The pilot study continued through 2003, as the GeoMedia software was used to develop the links between the existing maps and the data files. During 2003, 44 street lighting quarter sections were digitized in microstation utilizing certain drafting techniques that would support a GeoMedia application to link the map with the data bases.

City Underground Conduit

On December 18, 2002, the Underground Conduit Unit was transferred from the Environmental Section to Central Drafting and Records, Transportation Section. This reorganization brought an Engineering Technician VI and IV to Central Drafting and Records. An Engineering Drafting Technician II was added to the work group.

During 2003, City forces installed an additional 2.0 miles of conduit, abandoned 0.2 miles and 18 additional manholes. An additional 0.4 miles of conduit and 6 manholes were installed for the City by others.

City forces installed new conduit in North 84th Street from West Lisbon Avenue to West Hampton Avenue. This conduit will service existing City facilities in addition to alleviating conduit congestion that exists in the area.

City forces installed new conduit in North Water Street from East Pleasant Street to East Brady Street. This conduit alleviates the congestion in the area. Conduit installation is planned for North Water Street from East Juneau Avenue to East Pleasant Street. This will provide a vital link from the downtown area to the northeast side of the City.

City forces installed conduit in East Kilbourn Avenue from North Astor Street to North Prospect Avenue and in North Prospect Avenue from West Kilbourn Avenue to East Wells Street. This conduit replaced the facilities that were in conflict with the Kilbourn Tower Project. This project was requested and funded by the developer.

Conduit installations in the Park East Freeway Project have been completed. This installation was in East/West McKinley Boulevard from North Milwaukee Street to North 8th Street, which also included a package under the Milwaukee River. This conduit provides another vital link between the downtown area of the City to the west. Conduit was also installed from the bridge house at McKinley to the bridge house at Juneau, thus providing for remote control access to both bridges. This conduit was both designed and installed by others as part of the Park East Freeway paving project.

As of December 31, 2003, there are 548.5 miles of underground conduit lines and 7,411 manholes in active service.

The Underground Conduit Area has spent the last two years working with a telecommunications company interested in leasing space in the City conduit system. This project was completed in 2003 and we are currently now leasing 24 miles of conduit to

this company.

FIELD OPERATIONS SECTION

The Field Operations Section operates, maintains and repairs the many infrastructure facilities located in the public way and river system. Responsibilities of the Field Operations Section are wide ranging and include:

- Inspection, maintenance and repair of the City's sewer system.
- Maintenance of the City's streets, alleys and sidewalk.
- Design and inspection of street, alley, sidewalk and bridge projects.
- Construction and maintenance of all public way lighting, traffic control signals and signing.
- Pavement markings.
- Construction and maintenance of the underground communication conduit system.
- Operation of the Municipal Asphalt Plant and the Traffic Sign Shop.
- Inspection of permitted utility construction in the public way.
- Operation and maintenance of the City's moveable and fixed bridges and viaducts.

CONSTRUCTION UNIT

Construction Section

The Construction section has become part of the Field Operations Section to improve efficiency and reduce costs. It has been an advantage to combine the maintenance of our roads and sewers with the construction of our roads and sewers. The Construction Section provides administration and inspection for contracts involving the construction of streets, sidewalks, alleys, storm and sanitary sewer, water main, and house services. Two District Engineering Units design the street and alley pavements and have field crews that measure final contract quantities for payment purposes. A Technical Services Unit tests all sewer and water main pipe to be installed and monitors all other materials testing performed by a private contractor.

In 2003 local paving work consisted of 14 contracts that totaled 5.16 miles. In addition, there were 1.57 miles of alleys. The total contract cost was $4.24 million. Three walk repair contracts cost $1.41 million. Sewer construction totaled $25.79 million for 50 contracts covering 14.53 miles. Relay of 9.50 miles of water main cost $5.84 million of 29 contracts. Inspection was also provided for 0.81 miles of suburban water main installation. Two minor building service contracts had work totaling $81,600.

State Paving

The Construction Section also performs administrative duties on WISDOT projects within the City of Milwaukee. These functions include construction management, contractor payments, and wage/labor verification and monitoring. Seven WISDOT paving projects were constructed this year at a cost of $13.63 million covering 6.72 miles. They include the following:

- North Green Bay Avenue – West Villard Avenue to West Silver Spring Drive
- North 84th Street – West Burleigh Street to West Hampton Avenue
- West Capitol Avenue – North Green Bay Avenue to North 35th Street
- North Milwaukee Street – East Mason Street to East Ogden Avenue
- South 20th Street – West Howard Avenue to West Morgan Avenue
- Park East Freeway – Hillside connection to North Jefferson Street (Freeway Demolition and local street improvements.)

Two bridge projects were also constructed this year at a cost of $7.49 million. They include the following:

- North Teutonia Avenue Bridge over the Lincoln Creek.
- Knapp Street Bridge over the Milwaukee River

HUBBARD TRAFFIC CIRCLES

Two traffic circles were constructed in the intersections of North Hubbard Street at Brown and Reservoir Streets. These traffic calming circles feature large planter areas, decorative concrete walls and curved stamped colored concrete cross walks.

NORTH MILWAUKEE STREET
East Mason Street to East Ogden Avenue:

This extensive resurfacing and reconstruction project took place during the busy Milwaukee festival season. The project was coordinated to accommodate Bastille Days, and the Harley Davidson's 100th birthday celebration. The project included the narrowing and the reconstruction of two blocks between East Mason Street and East Wells Street.

MCKINLEY STREETSCAPE PROJECT

This beautification project featured raised concrete planter walls along the medians between North 6th Street and North Martin Luther King Jr. Drive. Additionally, granite blocks decorated the area between the main walk and the curb and gutter. Mature trees were planted along the entire stretch of the project.

NORTH GREEN BAY AVENUE
West Villard Avenue to West Silver Spring Drive

Work on North Green Bay Avenue was done under WISDOT contract that totaled $1.6 million. The work that encompassed this project was the re-decking of the bridge over Lincoln Creek, reconfiguring the ramps to West Silver Spring Drive, repair of curb and walk, and resurfacing the roadway with asphalt.

PARK EAST FREEWAY

2003 brought an end to the Park East Freeway Spur. The removal of the structure began in June 2002, and was completed in November 2003. In its place, West McKinley Avenue and East Knapp Street were constructed along with the intersecting streets from North Milwaukee Street to North 6th Street. In the 1.5 years

From left to right: Thomas Miller, Public Works Coordination Manager, Jean Ziller, Project Engineer and Tom Rach, Construction Manager.

Riverworks BID Recognizes Miller, Rach and Ziller for Capitol Drive Streetscape

The Riverworks Business Improvement District (BID) recognized the Department of Public Works by bestowing a plaque to Tom Miller, Public Works Coordination Manager; Thomas Rach, Construction Manager; and Jean Ziller, Project Engineer, for their efforts on the Capitol Drive Streetscape project. The streetscape project consists of plazas, planters and stamped colored concrete, which are being constructed throughout Capitol Drive from North Humboldt to North 2nd Street. The project started in August of 2002 and is expected to be completed in the spring of 2003 at a cost of $670,000.

The 40,000 square feet of stamped and colored concrete walk for the streetscape was constructed in several steps to look like antique red brick in a herringbone pattern. Plazas include stamped concrete brick, limestone inlays, and limestone planters. The limestone slabs for the planters are from Lannon Quarry and have an average weight of 2 tons with a size of 1.5 feet by 3.5 feet. Riverworks signs and original decorative street art by Flux Inc., will be installed in the medians to complement the stamped red brick, limestone walled planters, harp streetlights and clock tower. The project included installing a new electric service, conduit and cables for median display lighting and banners. At the project completion, new landscape designs of trees, shrubs, flowers and plantings will be installed.

that it took to complete the project, there were nearly 162,000 cubic yards of dirt moved, 60,000 tons of concrete recycled into crushed aggregate, and 39,000 square yards of concrete pavement constructed. The total cost of the project was about $11 million.

KNAPP STREET BRIDGE

A vertical left bridge spanning the Milwaukee River and connecting the new West McKinley Avenue and East Knapp Street was under construction in 2003. The bridge is an integral part of the Park East Development and is expected to be completed in June 2004.

WEST CAPITOL DRIVE
North 36th Street to North Green Bay Avenue

The City of Milwaukee, in conjunction with the Wisconsin Department of Transportation, has completed the construction of West Capitol Drive from North 36th Street to North Green Bay Avenue.

The work on this project consisted of removing the existing pavement structure and replacing it with a new nine-inch thick concrete pavement. Concrete curb and gutter and driveway approaches were replaced throughout the length of the project. Sidewalks were replaced at areas where it was needed. During construction, West Capitol Drive remained open to traffic in both directions. The construction was undertaken in two stages. During Stage I, the south half (eastbound roadway) was constructed first while traffic continued to travel in both directions on the north half (westbound roadway). During Stage II, the north half was constructed while traffic continued to travel in both directions on the newly constructed south half. All major intersections remained open to traffic during construction. The project started on April 21, 2003 and was completed by December 7, 2003 at a cost of $4.6 million.

Prior to the start of construction, all businesses on West Capitol Drive were contacted and access arrangements were made. Special signage was placed throughout the project corridor to indicate that businesses were open during construction.

Streets and Bridges Unit

Street Maintenance Area

The Street Maintenance Section administers three types of maintenance contracts; pavement seal coating, crackfilling and asphalt pavement resurfacing. We have completed our fifth season of the "Slurry Seal" method of seal coating asphalt pavements. It was also our second season of the "Flex Seal" method of seal coating asphalt pavements. Again this years' program was a success, receiving favorable public and Aldermanic reaction while receiving very few complaints. City streets received 242,934 square yards of "Slurry Seal" and 18,354 square yards of "Flex Seal" in 2003.

Under the Crackfilling Contract a contractor crackfilled 323,790 square yards of pavement throughout the city with a rubberized joint seal. Asphalt resurfacing occurred on West Layton Avenue, West Glendale Avenue, North 50th Place, West Keefe Avenue, North 6th Street, North Halyard Street, North Plankinton Avenue, West Kilbourn Avenue, West Locust Street, North 7th Street and North 17th Street where 9,476 tons of asphalt were placed.

Street Maintenance Section field crews placed an additional 10,459 tons of asphalt on city streets. Repair projects included asphalt shims on roadways, asphalt shims on sidewalks, small asphalt patches and pothole repairs.

In preparation of Harley's 100th Anniversary Celebration routine street maintenance and event-driven projects were scheduled to dovetail with the planned Anniversary celebrations. The downtown area streets were checked, patched and motorcycle friendly prior to the celebration and onslaught of thousands of motorcycles. Kilbourn Avenue from the river west to North 4th Street was repaved with asphalt. In addition curbs along this stretch of roadway were replaced in conjunction with this project.

Street Maintenance Section has improved our tracking of incoming customer requests. All service requests that are phoned in to the City of Milwaukee are answered by the Call Center. 2003 marked the first full year that Street Maintenance Section utilized the services of the Call Center. Telephone calls for pothole complaints, offsets along sidewalks, guardrail problems and pavement concerns that use to come into our offices are now answered by the

Call Center. These calls are placed into a computer database and retrieved daily by our supervisors via computer. Utilizing the services of the Call Center has improved our record keeping and improved the tracking of complaints, Aldermanic Service Requests and City Attorney Claims.

Bridge Maintenance Area

This Section maintains and operates over 200 fixed and movable bridges. In 2003 our operators conducted 14,119 bridge openings for commercial and recreational traffic. Presently seven of the twenty-one movable bridges can be remotely operated from another bridge(s), namely the Emmber Lane, Plankinton Avenue, Clybourn Street, South 1st Street, North 6th Street, South 6th Street and Highland Avenue Pedestrian bridges. Additional remote operations are planned for St. Paul Avenue Bridge.

The Bridge Section joined other DPW divisions in preparing Milwaukee for the Harley's 100th Anniversary Celebration. Routine bridge maintenance and several event-driven projects were scheduled to dovetail with the planned Anniversary celebrations. Work proceeded on the St. Paul Bridge to Michigan St. Bridge remote project. At the Kilbourn Ave. Bascule, pit ladders were replaced and concrete and sacrificial timbering repairs were made to the piers. Structures and Maintenance Sections developed a replacement steel channel timber mounting system that will be installed as needed along the City's navigable waterways. On outlying structures, in addition to the usual spring repairs, expansion joints were replaced on N. 51st St. and N 60th St. bridges over Lincoln Creek. Bicycle racks were again installed this year at various locations throughout the city.

Our downtown bridges are often decorated for local festivals. Two lighting projects stood out this past year. With help form Harley, our decorative white bridge lights went orange for the 100th Anniversary Celebration. Support work was also performed for the Milwaukee Downtown Holiday Lights Festival. Outlets were installed to allow placement of lights on bridge rails.

The Bridge & Iron Painting Crew continued anti-graffiti work throughout the year in co-operation with the Dept. of Neighborhood Services and the Police Department. A lower cost graffiti shield for signs is being field-tested. Our Bridge & Iron Painting shop was reorganized and a small blasting cabinet was installed. Ahead of the Harley 100th Anniversary Celebration, bridge railings, police call boxes, fire hydrants, and traffic lights were inspected and touched up. Extensive graffiti sweeps were conducted around festival events. For the Water Department, several projects were completed. At the Howard Avenue Treatment Plant the cavernous pipe gallery was prepped and painted by a four-person crew.

Inspections Area

The Inspection Section handled over 9000 construction permits in 2003. In addition to construction permits, the Inspection Section reviews Special Event Permits such as block parties, walk/runs and parades. There was a dramatic increase in the number of Special Event Permits due to Harley's 100th Anniversary Celebration. Contractors working in the location of Special Events are notified of the event and directed to complete their work or close up their excavations so as to cause little or no disruption to the Special Event.

Electrical Services Unit

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

Traffic & Sign Services Area

The Traffic Services professionals maintained 713 controlled intersections in the City of Milwaukee. Other operations and maintenance total included:

- Replaced 3,766 signal lamp outages
- Repaired / restored 97.4% of 516 controller troubles within one day
- Repaired / restored 75.2% of 278 circuit troubles in one day
- Repaired / replaced 246 controller / signal knockdowns in 2003

Some additional highlights for 2003 were the installation of new traffic controlled intersections at the following location:

- North 55th Street & W. Capitol Drive
- North 6th Street & W. McKinley Ave
- North Commerce Street & E. Pleasant Street

The Traffic Signal Shop installed 8 complete "LED" signal heads plus 4 "LED" "Walk / Don't Walk" signals at the intersection of W. Silver Spring and N. Teutonia Ave. This installation was done to test the industry's new signal technology and monitor the electrical energy costs for possible future savings i.e. "LED's" vs. incandescent lamps.

Work continued on the "Park East Corridor" with the installation of an underground "Closed Loop System" consisting of underground vaults and conduits.

Finally, the Traffic Signal Shop installed its first "Wireless" traffic interconnect between Dr. Martin Luther King Dr. and North Commerce St.

Sign Shop Area

The Sign Shop provided the following services for 2003:

- Maintained and replaced / repaired 2,143 permanent signs.
- Maintained and replaced / repaired 437 Street name signs.
- Provided traffic control at 1,059 special events.
- Installed over 8,000 temporary signs.
- Screen printed and installed approximately 1,400 special "Harley-Davidson" signs for "Harley-Fest".
- Painted 1,147 crosswalks.
- Painted 2,253,000 feet of long line striping.

Electrical Services Area

Electrical Services personnel performed as a team throughout 2003 to provide the City of Milwaukee well-lit neighborhoods and roadways. With priorities changing often, personnel responded professionally around the clock to citizen requests, Alderperson's Service Requests and departmental directives.

Electrical Services collaborated on a major Streetscape project at Marquette University on Wisconsin Ave. 11th to 20th and 11th Street, Wisconsin Ave. to Wells. This project included the "Closed Loop" system [Underground Junction boxes and conduits] along with all associated circuitry for Street Lighting and Traffic control equipment.

Additionally, Street Lighting crews removed numerous temporary construction poles and existing poles, and installed 125 new concrete poles. These crews also removed old fixtures and arms from the old poles and re-installed new fixture arms and Milwaukee lanterns and Harps.

Other high priority projects completed were:

- Howard Avenue, 13th to 27th
- Center Street, Humboldt to Martin Luther King Drive
- 21st Street, Greenfield to Mitchell
- 20th Street, Howard to Morgan
- Sherman Blvd, W. Glendale Ave. to W. Marion Street & W. Congress / North & South Roadways, 35th Street to N. Sherman Blvd. Due to MMSD Lincoln Creek Project
- Milwaukee Street, Mason to Ogden

Work is continuing on the "Park East Corridor" which includes the installation of concrete poles, poured concrete bases for "Bolt-down poles," underground conduits and vaults [Closed loop system] and completely re-cabling of the entire Park East project limits.

Although not completed, work continued on the following projects:

- Wisconsin Ave, 2nd to 4th
- Capitol Drive, Green Bay to Roosevelt
- Howell Ave. Chase to Oklahoma
- 84th Street, Burleigh to Capitol Drive
- Commerce, Pleasant to Humboldt
- Green Bay, Silver Spring to Villard

Additional smaller projects were also completed in 2003:

- Clovernook, Mill Rd. to 93rd, 94th
- S. 21st Street, Greenfield to Mitchell
- Terrace, Lafayette to North Ave.

As part of a special project, Street Lighting installed all poles, underground cable and performed circuit cut-overs to eliminate the substation, T19C located on 35th and North Ave. in the time frame requested by the Department of City Development.

Street lighting personnel maintained a system of 67,061 streetlights and 8,792 alley lights and completed the following:

- Electrical Mechanics replaced or repaired 667 of 762 inoperable alley lights [87%] within 72 hrs.
- Replaced 268 deteriorated poles
- Repaired 2058 of 2087 circuit troubles [98%] in 24hrs.
- Repaired 2194 of 2528 [86%] single unit troubles within 30 days
- 11,906 streetlights relamped as part of the Annual Group Replacement program
- 3,656 units were relamped as scattered outages
- Utility locators completed 34,040 hotline requests

In 2003, budget constraints caused many crews to be understaffed until six weeks into the paving construction season. This shortage could have delayed timely completion and coordination of construction projects. In addition, the retirement of key personnel in management and hourly positions presented additional challenges. However, due to the dedication, professionalism and commitment from the diligent team in Electrical Services and the support from the rest of the Infrastructure Division, 2003 was a great success.

Support Services Unit

Support Services staff continued their excellent work in 2003. Year-end inventory value was more than $360,000 less than the previous year. Inventory value is now down more than $665,000 since the end of 2000.

The City's Asphalt Plant produced 15,012 tons of mix in 2003. The operation of this valuable asset gives the Division the flexibility to provide its field crews with the proper type and amount of material on an as needed basis.

The Milwaukee Water Works (MWW) is a self-financing business enterprise of the City of Milwaukee. The utility collected $69.8 million in 2003 to finance its operations. The Water Works paid to the city a $7.72 million dividend, in the form of a payment in lieu of taxes. The payment in lieu of taxes directly offsets the city tax levy, reducing the 2003 tax rate by $0.36 per thousand dollars of assessed valuation. Other 2003 payments to city departments for the municipal services used by the water works totaled $8.95 million.

MWW serves Milwaukee and 14 suburban communities with a user population of approximately 831,000 people. Nine wholesale customers operate their own water utilities, billing their customers and maintaining the distribution systems in their communities. Wholesale customers are Brown Deer, Butler, Greendale, Menomonee Falls, Milwaukee County Grounds, Shorewood, Wauwatosa, West Allis, and We Energies Water Services, which provides service to customers in Mequon. New Berlin signed a wholesale service contract in 2003 and should be receiving Milwaukee water in 2004.

Four retail customers receive full water service from MWW, including customer billing and distribution system maintenance. They are Greenfield, Hales Corners, St. Francis, and a portion of Franklin. In a unique arrangement, West Milwaukee receives billing services from Milwaukee Water Works and maintains its own distribution system. Milwaukee Water Works is appreciative that these communities have selected us to be their water provider.

Our 350 professional and dedicated employees in water treatment, distribution, engineering, customer service, and administration, are committed to providing a reliable supply of superior quality water.

Water Quality

Regulatory monitoring to assure compliance with the Safe Drinking Water Act was a large part of the Water Quality Section's responsibilities. MWW continued compliance with requirements of the new Interim Enhanced Surface Water Treatment Rule. This regulation set tighter filtered and finished water turbidity standards, established new monitoring requirements for individual filters, and requires monthly verification and documentation of filter performance. To meet these new requirements, Water Quality staff redesigned monthly report forms, changed the standard operating procedures for individual filter turbidimeters, and conducted challenge studies to verify online instrument performance.

Staff completed ozone contactor tracer studies at the Linnwood Plant in 2003. These studies measure the transit time of the water through the contactor at various flow rates. It is necessary to know this transit time in order to calculate disinfection effectiveness. Water Quality Section staff designed the study, collected and analyzed hundreds of samples, and will submit the final compliance report to the Department of Natural Resources.

The Water Quality Section responded to 140 calls from customers regarding water quality issues in 2003.This is the lowest annual number of calls to the Water Quality Hotline since it was established. Operation of the 24-hour water quality voice messaging line, coupled with follow-through to address issues and arrange for field visits as necessary, assured our customers of the utility's commitment to providing the best water quality.

Business Section

Accounting Services

The Accounting Services Group provides financial reporting on the water works' operations in compliance with Generally Accepted Accounting Principles. It assures that the water works financial operations are within city budgetary constraints and administers payroll for the utility's approximately 350 employees.

Accounting Services plays a key role in the relationship Milwaukee Water Works has with the state Public Service Commission by serving as liaison with Public Service Commission staff. The group prepares and transmits the documents used to assure the PSC that the Milwaukee Water Works is complying with its regulations. In 2002, the PSC granted the MWW an overall water rate increase of 10%. A Milwaukee typical single-family residential account increased from $37.84 to $41.59 per quarter (based on 23Ccf or 17,205 gallons) This rate remained in service throughout 2003.

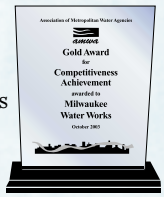
Milwaukee Water Works

Zeidler Municipal Building
841 North Broadway
Room 409
[414] 286-2830

Carrie M. Lewis, M.Sc.,
Superintendent

Dale E. Mejaki
Administration and Projects Manager

Milwaukee Water Works Wins National Recognition



Milwaukee Water Works employees have received national honors for their efforts in the past five years to reinvent and re-engineer our drinking water utility to make it more competitive. The "competitive stance" better meets expectations of consumers and municipal government leaders, and the economic forces that affect the business of providing high quality drinking water.

MWW Superintendent Carrie Lewis presented the Gold Award for Competitiveness Achievement to employees at worksite meetings during the last week in October. The Association of Metropolitan Water Agencies (AMWA) gave the honor to MWW and seven other public drinking water utilities. AMWA represents the 125 largest water utilities in the United States.

MWW provides purified drinking water from Lake Michigan to 831,000 people in Milwaukee and 14 surrounding communities. The Water Works employs approximately 350 professionals in water treatment, distribution, engineering, customer service, and administration.

At the meetings, Lewis shared a two-inch-thick file of suggestions for improvement that employees had made during an assessment of the utility in 1998. Many have been implemented through union management cooperative efforts, she said, such as cross-training and automating many areas.

"This award recognizes the contributions from employees throughout every part of the organization; it's not about one or two managers," Lewis said. "We made changes in how we do our business and increased the quality of our drinking water without decreasing our service level."

The award recognized accomplishments such as consolidating work units and automating functions to streamline workflow without compromising effectiveness. Not only is the MWW workforce more cross-trained but employees have a broader base of skills to allow for more flexible scheduling and increased productivity.
Multi-agency Emergency Response Exercise at Linnwood Plant.

Meter Services

During summer of 2003, the Meter Reading unit was moved from the Zeidler Municipal Building to the Meter Repair Shop on South Kinnickinnic Avenue. The administrative office area was remodeled to provide two new office spaces and room for clerical staff and the meter readers/investigators.

Residential water meters are read quarterly. In 2003, over 607,200 readings were completed by the computer-equipped van as it drove down streets and over 14,000 were performed manually. Commercial Meter Readers manually read the meters of our 1,000 largest customers on a monthly basis. This operation was performed 20,543 times. Many of these large meters are located in underground vaults; confined space entry and air monitors are required to safely read these meters. Commercial Meter Readers compare current usage to past usage to identify changes in seasonal or monthly patterns and report discrepancies for timely corrective action.

Water Meter Investigators provide investigative services to customers who report high bills and questionable account information. They make personal visits to customers' locations to verify meter, address and water status information. They also perform inspections of interior plumbing fixtures to locate leaks for residential and small commercial customers. In 2003, nearly 8,000 investigations were completed.

The Meter Repair Shop facility and personnel enable MWW to ensure that water meters are accurately representing water consumption, giving the customer fair value and the water works its appropriate revenue for water delivered. Large and small water meters are tested and repaired at this facility. Staff install, exchange, and test meters in the field. Water meters range from 5/8-inch to 12 inches and range from 12 pounds to 3,300 pounds. (The size of a water meter refers to the diameter of the pipe at the inlet of the meter.)

The program to change medium-sized meters (1.5" to 2") to automatic meter reading meters reached the 95% complete milestone in 2003, with 4,390 units installed. Meter Shop personnel have adapted to all the demands of the AMR projects. All job classifications have demonstrated their skill in meter installation, but also solving all types of electronic, plumbing, low pressure, and customer service issues in the field and shop. This diversely skilled work force will prove to be a valuable asset in the continued maintenance of the new AMR systems.

During 2003, the Meter Shop installed over 195 hose connections and handled over 112,000 linear feet (over 21 miles) of hose. These hose connections have enabled businesses, day care centers, etc. to remain open while repairs were being performed on the water mains. Meter Shop personnel are on call 24 hours a day to support these activities.

A hot water thawing unit was purchased in 2003, which is used to thaw frozen pipe by injecting a stream of warm water into the frozen service pipe to melt the ice. Meter Services personnel have used this piece of equipment with success and in most cases were able to thaw the service pipe in minutes.

Customer Service

The Customer Service Section responds to customer inquiries over the phone and at the MWW service counter in the Zeidler Municipal Building. Customer Service Representatives meet customers' needs ranging from resolving billing inquiries to scheduling meter reading appointments.

The MWW Interactive Voice Response (IVR) system allows customers to access account information about their municipal services bill by telephone 24 hours a day. In 2003, the IVR system processed 135,294 calls. Some customers preferred to speak directly with our Customer Service Representatives; 62,636 customer contacts were handled in this manner. In 2003, the walk-up customer service and cashiering stations handled 4,009 customer inquires, 56,946 counter cashiering transactions and processed 47,727 payments that were dropped off at the customer service office.

Marketing Initiative

In mid-2003, MWW added a fulltime marketing specialist to raise awareness of the benefits of Milwaukee's water quality, quantity, and value. The marketing specialist encourages water-intensive industries to locate in Milwaukee and serves as liaison with existing larger water customers. Adding customers spreads operational costs over a larger rate base,

enabling the utility to keep water costs down. And, the vitality of industry in the area benefits the regional economy.

The Milwaukee Water Works offers these competitive advantages for water-intensive business development: excess capacity, competitive and stable cost of treated water, superior water quality controls, high quality water conducive to industrial use, regional availability providing greater diversity of business locations, superior customer service, security measures to ensure safe and sufficient water, use of best practices, and diligent infrastructure maintenance.

By year's end, MWW had established marketing relationships with the Metropolitan Milwaukee Association of Commerce, Milwaukee Economic Development Corp., Forward Wisconsin, Spirit of Milwaukee, and Milwaukee Downtown. Another primary focus of the marketing plan is to promote the water works among all customers as the source of the region's pure quality drinking water.

Billing and Collections

The Billing and Collections Sections generate and collect the municipal services bills, which include charges and fees for water, sewer treatment, sewer maintenance, solid waste collection and ice and snow removal. In 2003, billing statements totaling over $144 million were mailed to 160,966 customers on schedule. This resulted in $133,411,515 being deposited into the various funds covered by the bills.

The relationship between the Village of West Milwaukee and the Milwaukee Water Works began in 1911 with the village becoming one of the utility's first suburban retail customers. In 2003 this relationship took another step with the Milwaukee Water Works providing billing services for the village's sewer payments.

Technical Services Section

The Technical Services Section maintains the Water Works' information-processing network. During 2003, the section continued to upgrade MWW's desktop PCs from Microsoft Office 97 to Microsoft Office 2000. A significant effort was required to recreate Excel spreadsheets, used by the Plants Section for calculation and reporting, in visual basic. Technical Services is responsible for primary support for Water Works GIS (Geographical Information System) and Water Main and Plant Design systems in 2002. Two GIS NT 4.0 servers were replaced with Windows 2000 servers in 2002. Migration of GIS printing services that reside on one of the servers was completed in 2003.

Technical Services worked with outside consultants on the process of making the Supervisory Control and Data Acquisition (SCADA) computer network more secure. The process of logically and physically separating it from the rest of the network to better prevent unauthorized access and hacker attacks was started in 2001, continued in 2002 and was continued in 2003. This process will be ongoing in future years.

During 2003, every section of the utility worked together to begin replacement of the Customer Information System (CIS). A consultant assisted in writing and publishing a request for proposals (RFP), and 13 vendors submitted responses. After an extensive review process four were asked to present live demonstrations of their product. These demonstrations were conducted in December. The utility will complete the evaluation process with the goal of securing a vendor and producing a test environment for a new system late in 2004. This will allow the utility to start using the new CIS in 2005.

Water Treatment Plants

In 2003, the MWW Plants Division pumped and treated 46.1 billion gallons of water, a 0.3% decrease from 2002. As seen in the table, Linnwood pumpage increased while the Howard pumpage decreased in 2003.

Plant

	2003 Pumpage *Million Gallons (MG)*	2002 Pumpage *Million Gallons (MG)*	Difference	% Difference
Linnwood	27,255.41	26,523.81	731.60	2.8
Howard Ave.	18,846.81	19,729.63	–882.82	–4.5
Total	46,102.22	46,253.44	–151.22	–0.3

Emergency Response Exercise at Linnwood Water Plant

In October 2002, the Milwaukee Fire Department Hazardous Materials Regional Response Team (HAZMAT), Milwaukee Fire Department Heavy Urban Rescue Team (HURT), Milwaukee Fire Department Battalion 2/Engine 27 and Milwaukee Water Works (MWW) participated in a full scale Emergency Response Exercise at the Linnwood Water Plant. Captain Michael Jones of the MFD HAZMAT, working with MWW, developed the mock incident which included the threat of weapons of mass destruction.

The event was coordinated to facilitate a training experience for both the Milwaukee Fire Department and the Milwaukee Water Works. For MWW it was an opportunity to experience training for Linnwood Plant personnel to mimic emergency conditions and proper plant response. Both organizations had an experience in which the MFD and MWW interacted in a manner to facilitate cooperation and communication between both departments.

Milwaukee Water Works personnel and Milwaukee Fire Department declared the exercise a huge success due to the coordination and cooperation of MWW Safety Specialist Michael Leszczynski, Plants North Operations Manager Dan Welk, HAZMAT Captain Anthony Wichman, HURT Captains Rick Mueller and Richard Wojciechowski, Engine 27/Ladder 5 staff, Battalion 2, and Med 6. Also contributing to the success of the exercise was the Milwaukee Health Department, Milwaukee Emergency Management personnel and additional security from MWW security firm, Wackenhut. All together, over 140 people participated in the exercise.

A MFD/MWW "after action" meeting was held in December 2002 at the Linnwood Plant to review and discuss the exercise. Based on the experience of the exercise, the MFD used the lessons learned to develop their exercise agenda for 2003. The Milwaukee Water Works and Milwaukee Fire Department agreed they will continue to stage future exercises.

— See photos on adjacent page.—

Multi-agency Emergency Response Exercise at Linnwood Plant.

The exercise was designed to facilitate cooperation and communications between MFD and MWW.

MWW "volunteer victim" First Responder being treated by MFD.

Rehearsing emergency evacuation.

Over 140 people in Fire, Water, Health, Security, and Emergency Management took part in mimicking emergency conditions and plant response.

Kilbourn Reservoir Decommissioning

The shift in pumpage may be explained by the completion of the first phase of the Kilbourn Reservoir Decommissioning Project. To accommodate a lower demand in the low service district, two of the three low service pumps at the Northpoint Pumping Station were replaced with appropriately sized pumps during 2003. Low service pumps #5 and #6 were originally 26 million gallons per day (MGD) pumps. Pump #5 was replaced with a variable speed pump capable of delivering 2-8 MGD and pump #6 was replaced with a 10 MGD pump. Low service pump #7 was not replaced and is capable of delivering 26 MGD if needed. A bypass was installed at the Howard Avenue Plant to relieve pressure. New suction valves were installed on the new pumps as well as new flow meters for all the low service and by-pass discharge lines. A pressure-reducing valve was installed in the mains near the Kilbourn Reservoir to supply water from the high service district to the low service district.

Having these new pumps available for low service district shifted the low service supply from the Howard Plant to the Linnwood Plant. This system will be tested in 2004 prior to decommissioning the reservoir. The project was undertaken as a cost saving alternative to replacing the reservoir while still maintaining pressure and flows in the low service district.

Linnwood Treatment Plant

Restructuring of plant staffing continued in 2003. In April, the Plants Operations Section implemented a sixth shift schedule. This added an extra shift of two Senior Water Plant Operators (SWTPO) and one Water Plant Operator (WTPO) to the Operation's shift schedule. This extra crew enables Operators to be available to perform more complex plant operations and preventive maintenance tasks.

As a result of the additional Operations staff, the Linnwood Plant was able to perform complete filter inspections on nine of Linnwood's 32 dual-media filters. In addition to assisting the Water Quality Section and a MWW consultant with detailed analytical analysis of each filter, Operators added over 132,000 pounds of anthracite filter media and replaced over 28,000 filter nozzles.

MWW Maintenance staff reorganization of job titles was completed. Skills criteria were developed and employees were evaluated and promoted to new and more challenging positions. This increased the workforce flexibility and efficiency.

During the spring of 2003, the Water System Operators-in Charge (WSOIC) were temporarily relocated from the Howard Avenue Plant to the Linnwood Plant. This was an opportunity to allow the WSOICs to interact with Linnwood staff during the testing of the new Northpoint low service pump at startup and to provide an opportunity to cross-train with Linnwood Operations staff.

A number of other projects were undertaken during 2003. An electro-hydraulic filter effluent valve operator was tested and installed on a filter. This operator greatly enhanced the stability of the filter valve operation reducing filter modulations. In 2004 all the filters will be replaced with a similar effluent valve operator to improve overall plant filter operation and stability.

A number of activities were undertaken regarding the Linnwood ozone treatment process. Water Quality and Operations Sections conducted tracer studies on the Linnwood ozone contactors. These tracer studies were at various plant flows to determine the actual T10 contact time. In response to new EPA data on the effectiveness of ozone inactivation of *Cryptosporidium,* the ozone dose was increased during 2003. Also, Water Engineering staff created a request for proposal to replace the water bath oxygen vaporizers with electric vaporizers. This work will be completed in 2004.

A number of security upgrades were conducted at Linnwood under the direction of the MWW Security Manager. All of the plant exterior buildings were re-keyed. In addition, card readers were installed on over half of the 50 exterior doors at the plant. Card readers were also installed at the entrance and exit gates. Staff members were issued a new form of security identification. Also, all of the SCADA system programmable logic controller cabinets were made more secure.

Installation of the new vacuum ammonia system, begun in 2000, was completed and initiated in November 2003. The system was retrofitted to include a softened water eductor system. This included the installation of two booster pumps, a backup water supply connection from the main house water system, two soft water resin tanks and three chemical feed eductors.

As part of a capital improvements project, the Riverside Pumping Station switchgear was replaced beginning in July. This was a major undertaking involving building a new switchgear building, new 35 kV switchgear and replacing all the 5kV switchgear doors and relays inside the station. The work was nearing completion by the end of the calendar year.

The Plant Automation Division coordinated performing a vibration analysis on eight of the nine high service pumps at the Riverside Station. This data will enable plant staff to precisely determine which pumps are in the most need of major repairs and to track the continuing performance of each pump.

Another capital improvement project was the replacement of the flocculator bearings and shafts in the northwest coagulation basin. In addition, five large isolation gates were also replaced including the northwest coagulation basin inlet gate and the coag drain gates and coag drain to the lake gates for the northwest and northeast coagulation basins. With the assistance of Water Engineering, a crack was repaired in upper deck of the northeast coagulation basin.

In the summer of 2003, the MWW Safety Specialist initiated a service contract with a vendor to inspect and service all of the fire extinguishers for the Linnwood Plant. The vendor will come on site twice a year to inspect and maintain as needed. Also, under the MWW Safety Specialist's direction, the Plants Section modified the annual safety refresher training to conduct two-hour sessions, four times per year. This schedule was deemed more advantageous with the 24-7 shift operators and reinforced MWW safety policies and guidelines throughout the year.

The MWW plants continued to participate with Milwaukee Area Technical College (MATC) Environmental Pollution Technology student intern program during the spring of 2003.

A number of other activities and projects were undertaken during 2003:

- Field-tested an ultrasonic filter bed level detector. This is used to determine the amount of filter bed expansion during a filter backwash.
- Field-tested a new fluoride on-line residual analyzer at a new sample point
- Refurbished Linnwood lobby marble floors
- New phosphoric acid metering pumps were installed.

Howard Avenue Treatment Plant

In 2003, the Howard Avenue plant pumped 18.8 billion gallons of treated water. This is slightly less than the 20.2 billion gallons pumped in 2002. The 2003 cost of chemicals for treatment was $29.61 per million gallons (MG). The electrical energy costs were $67.16/MG. Operating efficiencies resulted in a 2.3 % decrease in the cost/MG for chemical treatment from 2002. However, increased energy costs resulted in an 11.5% increase in electrical operating costs/MG of treated water. The combined increase in operating costs from chemicals and electric power was 6.9%.

In April 2003 the operations division implemented a sixth shift schedule. No change was made in the number of employees. Creation of the sixth shift made more employees available to perform complex plant operating and preventive maintenance tasks during the day shift.

The Maintenance Division reorganization of job titles was also completed in 2003. Skills criteria were developed and employees were evaluated and promoted to new titles. This increased the workforce flexibility and efficiency. The division completed over 500 preventive maintenance tasks and over 100 demand repair tasks.

Operations and maintenance personnel replenished anthracite and replaced the surface wash nozzles on all filters in 2003. Operations personnel also started performing comprehensive filter inspections, which previously were performed by a contractor. The operations crews calibrated all chemical feed pumps.

Several other projects were untaken at the Howard Avenue Plant during 2003. The services of a diving contractor were enlisted to determine the source of a leak detected near the west clearwell. Evaluation was pending at this writing. The ozone dose was increased in response to EPA data on the effectiveness of ozone inactivation of *Cryptosporidium*. The engineering staff designed a ventilation system to remove a safety hazard caused by ozone off-gassing in the rapid mix area.

Left to right: Common Council President Marvin Pratt, New Berlin Mayor Ted Wysocki, Mayor Norquist, Milwaukee Water Works Superintendent Carrie Lewis, DPW Commissioner Mariano Schifalacqua, and 5th District Ald. Jim Bohl drink to the signing of the contract with a cup of refreshing Milwaukee water.

Milwaukee Water Works Adds New Berlin to its Customer List

Wednesday, June 25th, was a red-letter day for the Milwaukee Water Works. Mayor John O. Norquist and New Berlin Mayor Ted Wysocki signed a 20-year contract making the city of New Berlin the 13th municipal customer of the MWW. The contract is set for automatic renewal for subsequent 10-year periods, unless one party requests termination. The contract was not reached without some debate from the Common Council, but after a 15-1 vote, the deal was sealed.
It will take a year before the infrastructure is in place for Lake Michigan water to serve the residents on New Berlin's east side. A subcontinental divide and international rules restricting the export of lake water beyond the divide cut off the western areas of the community from lake water. The contract has a clearly defined area for water service:

- 100% within Great Lakes watershed
- 100% within MMSD service area
- 95% developed and 5% parkland
- New Berlin has an existing distribution system

Milwaukee will receive $68,000 a year, helping to hold down water rates for Milwaukee customers, while New Berlin will have access to the cleanest, most economical source of water available.

Mayor Ted Wysocki signs the contract to accept the sale of Milwaukee water to New Berlin.

Operations staff tested the effectiveness of high speed mixers in aiding the mixing of ammonia. Results indicated shutting off the devices could save energy. A contractor evaluation of the east clearwell roof integrity indicated it was structurally sound. However, a rubber roof membrane will be installed to prevent runoff leakage into the clearwell. Contractors removed soil contaminated by an oil tank as part of a soil remediation project. Efforts continued to improve the physical, cyber, and procedural security of the water plant. Work began on a new Sixth Street entrance.

Several projects occurred at the booster stations. The interior and exterior of Hawley storage tank were painted and cathodic protection was installed to prevent corrosion. Refurbishing of a pump at the Menomonee Valley Station was awarded to a contractor and work will begin in 2004.

Computerized Maintenance Management System

A relatively new technology to streamline workflow and enhance system reliability is the Computerized Maintenance Management System (CMMS), which includes over 5,030 pieces of equipment. In its third year of operation, maintenance and water quality staff completed 11,966 preventive work orders and 1,021 demand work orders. The CMMS group is looking at new software to continue to improve tracking, scheduling, and further automate the plants.

Distribution Section

Water Distribution repairs and maintains the water distribution piping system throughout the City of Milwaukee and the retail suburbs of Greenfield, St. Francis, and Hales Corners to ensure continuous delivery of sufficient high quality water to all customers of the Milwaukee Water Works. Distribution employs quality repair practices using high quality parts and materials. Preventive maintenance systems have been evolving into the core of distribution operations. Scheduled activities include repair and maintenance of facilities within every upcoming paving project area, annual flushing of dead end water mains, leak surveys to identify non-surfacing water leaks, and a hydrant inspection program. Distribution has been progressive in researching and implementing new technologies in materials, repair parts, and equipment as well as staying abreast of new developments in maintaining distribution systems to provide a quality conduit to deliver potable water.

Emergency repairs continue with an aging infrastructure. Distribution professionals conducted 11,257 investigations for various reasons such as reports of leaks in the street and concerns from our customers. Water Distribution Supervision on duty or on call assesses each emergency situation and determines the necessary action. Repair Crew employees responded to 1,092 call-outs for emergency, after-hour repair needs. This ensured maintaining water service to our customers with the least amount of interruption as well as maintaining the integrity of the water distribution system. In 2003, distribution repaired 851 main breaks in addition to repairs to service laterals, hydrants, valves, and curbstops.

Distribution coordinates new water main installation projects with various contractors to plan the water shut off requirements, operate the necessary valves for the water shut off, coordinate water outages with affected customers, provide pipe cutting services with specialty saws for large diameter water mains, and return the water main to service.

Distribution also works closely with the paving programs of the City of Milwaukee and suburban communities to coordinate preventive maintenance activities. Prior to paving, the water distribution system is reviewed in detail for possible improvements such as additional shut off valves and the elimination of unused piping that if left in service could potentially cause future leaks. All valves are exercised and repaired or replaced as needed, service lateral access boxes are located and inspected to make sure the curbstop is accessible and operable for any future shut off needs. Leak surveys are conducted to detect any underground leaks. The goal is to ensure that buried water infrastructure is in good operating condition prior to the road above being paved. This maintenance program has successfully reduced the incidence of disruption to new pavement for emergency repairs.

Leak detecting has taken on a greater focus as the water distribution system ages. Underground leaks can sometimes go undetected as water seeps into other underground voids. The use of a leak correlator provides a mechanism to detect these leaks that do not

Photo credit: Mark Gremmer

A painter perches high atop the Hawley Tank while completing detail work during the tower's repainting.

surface, helps identify needed repair activities and reduces the need for future emergency repairs. The leak correlator uses highly sensitive microphones attached to valves or services. Data about the pipes is entered into the computer, the sound is analyzed, the location of the leak is pinpointed, and repairs are made.

The Hydrant maintenance and inspection program is conducted by four dedicated Hydrant Service Workers. These employees inspected 9,076 hydrants in 2003 using portable handheld computers to scan the bar code affixed to the hydrant and input all related inspection data into that specific hydrant record. In addition, while flushing each hydrant during the inspection process, the water is sampled using a portable turbidimeter to ensure that the Milwaukee Water Works' water quality standards are met or exceeded throughout the distribution system. Any hydrant defects noted from the inspection are reported for repairs and if a hydrant is found to be inoperable, the Fire Department is promptly notified of the out-of-service status as well as when the hydrant repair is complete. For further identification of hydrants, plastic rings were installed to provide fast identification of dead end main hydrants, hydrant out of service, restricted use hydrants and private hydrants, which are not installed or maintained by the Milwaukee Water Works. We work closely with the fire departments of Milwaukee, Greenfield, Hales Corners, and St. Francis to ensure a well-communicated fire protection program.

Water Engineering

The Water Engineering Section continues to function as an in-house resource for the utility. The section is responsive to applied research needs of the utility and coordinates the Capital Improvements Program (CIP). The 2003 budget for CIP totaled $14.9 million with $11.6 million to replace water mains and $3.3 million for water treatment process and facility improvements. Capital improvement projects are specifically planned to increase efficiency and maintain the reliability of the entire Milwaukee Water Works system.

In 2003, Engineering Section staff also continued to support the operation and maintenance of facilities by providing consulting engineering services for a number of projects. Construction of a metal-clad high voltage switchgear at the Riverside Pumping station began and was nearing completion at year's end. A project involving the abatement of lead paint also began at the Riverside Pumping Station. MWW security priorities led to the design and construction of a new entrance at the Howard Avenue Treatment Plant. Significant design efforts were involved in two other projects — a roof for the Howard Avenue east clearwell and renovation of the second floor of the chemical building of the Howard Avenue Plant.

Water Engineering staff prepared plans and specifications for 1.2 miles of new water main extensions and 9.2 miles of replacement water mains. One hundred thirty-six plans were prepared for these installations within the City of Milwaukee. Projects coordinated directly with the DPW Infrastructure's Construction Section involved three emergency relays, three feeder main valve replacements, and four feeder main repairs. Plans were designed and reviewed for 23 alterations of water mains for various external projects. Plans were reviewed and approved for seven suburban projects.

Additionally, staff continued performing the strategic review and planning for the construction of the new Marquette Interchange of I-90/94 and its impact upon the Milwaukee Water Works facilities. The first phase of water main work in West Clybourn Street and Tory Hill was reviewed and included in the state contract for this project. Continued work on the upcoming "North Leg" and "Core" phases will continue in 2004. New streets and development needs along North Water Street required relaying and abandonment of several water mains.

Staff also maintained and updated the Milwaukee Water Works distribution and transmission system map and conducted daily updates within MWW customer service software. Information relating to location of water mains, valves, services, and hydrants are provided to this section and it is graphically represented on the maps and the data entered within a customer service database. The accuracy and integrity of these maps and the data are essential to the day-to-day operations of the utility.

Permit applications for installation and alteration of the facilities of private utilities in

Helping Our Community

Milwaukee Water Works Distribution employees collected six tons of food in one day as a grand finale to their summer food drive for area children.

The day after Labor Day, the people usually seen performing such duties as repairing water mains and flushing fire hydrants unloaded two trucks carrying 3,757 cans and boxes of food at the Second Harvest Food Bank and the Hunger Task Force. Food pantry officials said the items weighed a total six tons.

Food pantries are typically in low supply during summer when school meal programs aren't available for children. Every payday Friday, from June through August, the 145 employees contributed items that were then delivered to the food pantries. The total number of items collected during the entire summer was 5,693.

A friendly competition arose between the north district Cameron Yard and the south district Lincoln Yard. The race to win resulted in the colossal outpouring of generosity during the final week. Distribution Manager Laura Daniels said the real winners in the competition were the children of Milwaukee, and she congratulated the Distribution section employees for their efforts to help them.

Photo credit: Ross Brzycki

Making the six-ton delivery are (l-r) Billy Allen, Dennis Beber, Laura Plizka of Second Harvest, Melinda Grabowski, Jim Zalewski, and Gil Taylor. Vince Maniscalco, who was key to the south side drive, was not available. Photo by Ross Brzycki.

public ways are reviewed for their impact on the water system. Permit applications for buildings also are reviewed. The staff reviewed over 1,000 permits in 2003.

Water Engineering provides flow and pressure information to plumbing contractors and fire protection companies. This information is used in the design of interior plumbing and sprinkler systems. As the distribution system changes, new flow tests are conducted by Engineering staff to ensure accurate information is being supplied to fire protection companies. In 2003, staff conducted 77 fire flow tests, of which 16 were done at the request of an outside agency. When these specific requests are made and performed, the outside agency covers all costs for the flow test. In order to provide quality control of pressure within the distribution system, Water Engineering installs and monitors remote pressure recorders at several locations during the warm weather months.

The Water Engineering Section assisted the Village of Brown Deer in implementing a Unidirectional Flushing project within the borders of the village. Unidirectional flushing is a step-by-step process of closing valves to create one-way flow in a water main loop and then opening hydrants in a set manner. The higher velocity of water produces a scouring action in the pipes, removing even the most stubborn deposits. The Milwaukee Water Works has conducted several Unidirectional flushing projects, within its system and had experienced successful results in improving water quality with the process. Unidirectional flushing and conventional flushing methods are continually being utilized and evaluated by the Milwaukee Water Works.

Water Engineering put to contract a type of pipe that was new to the Milwaukee Water Works and which also utilized a new method of installation. Approximately 1,200 feet of high-density polyethylene pipe (HDPE) was installed by directional bore in West Brown Deer Road to eliminate two dead ends and to provide better service to the customers in the area. This method was chosen to reduce the disruption to the adjacent property owners, to eliminate the need to cut into the concrete pavement in West Brown Deer Road. A limited number of other utilities in the location made it convenient to use directional boring. The total working days proved to be considerably less than with the open cut method of construction. This specific project will continue to be monitored by the Milwaukee Water Works to determine the long-term success of this type of material and installation, especially where conditions are favorable.

Distribution material inspections assure that only materials meeting Milwaukee Water Works' high standards are installed in the distribution system. After being received by the Stores Division, all materials are visually inspected for compliance with city specifications. In many cases, these items are hydrostatically tested at design pressures. Water Engineering staff responded to 308 requests for inspection. The inspections were for various purchases delivered to MWW such as hydrants, valves, fittings, etc. The 308 requests translate to 29,609 pieces of material. The staff also inspected fittings furnished by the contractor.

2003 *Statistics*

GENERAL INFORMATION ABOUT MILWAUKEE

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

GENERAL INFORMATION ABOUT MILWAUKEE'S INFRASTRUCTURE

Alleys, total	414.6 miles
Freeways	40.1 miles
Paved City Streets	1,417 miles
Unpaved City Streets	15 miles
Total city streets	1,432 miles
Miles of lighted streets	1,288.54 miles
City maintained bridges	220
Movable bridges	20
Total bridge openings	18,119
Total sewer mileage in operation (sanitary, storm and combined)	2,437
Main line sewers in the City	120 miles
Streets with interim lighting	81.84 miles
Unlit streets	43.69 miles
Street lighting units	66,871
Alley lighting units	8,790
Traffic control signals	728 intersections
Traffic control signs	102,058
Underground conduit	546.3 miles
Bus stops, signage maintained	4,267

MILWAUKEE WATER WORKS

Howard Avenue plant capacity	105 million gallons/day (MGD)
Linnwood plant capacity	275 million gallons/day (MGD)
Total annual pumpage (gallons)	46.1 billion
Consumption per capita per day (gallons)	65
Meters in service	160,966
Water hydrants	19,726
Water mains in service (miles)	1,954
Revenue	$74.5 million

Milwaukee Water Works' purification process is comprised of ozone disinfection, alum coagulation, dual media filtration, fluoridation, corrosion control, and chloramine post-disinfection.

Retail customers: Franklin, Greenfield, Hales Corners, St, Francis, West Milwaukee

Wholesale customers: Brown Deer, Butler, Greendale, Menomonee Falls, Milwaukee County Grounds, New Berlin, Shorewood, Wauwatosa, West Allis, WE Energies Water Services

SANITATION

Residential Waste collected	179,784 Tons
Recyclables collected	26,100 Tons
Leaves and Yard Waste collected & composted	25,285 Tons
Snowfall (January – December)	32.6 Inches
General snow plowings	2
Ice control operations	23

FORESTRY DIVISION

Trees on city streets	200,000
Shade trees planted	2,731
Trees pruned	50,258
Trees removed (all causes)	3,529
Stumps removed	4,143
Boulevard medians & greenspaces maintained	476 acres
Flowers produced, annuals	371,546
Flowers planted, annuals	185,448
Flowers planted, perennials & bulbs	7,455
Shrubs planted	1,497
Evergreens planted	107
Landscaped boulevard medians	121.8 miles
Greenspaces maintained	59
Totlots maintained	57
City properties maintained	20
Service requests	9,620

INFRASTRUCTURE SERVICES – SEWER DESIGN AND MAINTENANCE

Sewers examined	84 miles
Sewers cleaned	422.2 miles
New sewers	81 miles
Replacement sewers	13.11 miles
Sewer lining	2.0 miles
Service calls answered	7,937

FLEET SERVICES

Work Orders	31,415
Preventive Maintenance Inspections Performed	7,359
Tires Mounted	3,933
Field Service Calls, Tires	4,392
Field Service Calls, Other	7,212
Stockroom Activity	$4,710,704
Vehicles Serviced	
Passenger Vehicles	1,047
Packers, Rear Load	144
Packers, Front Load and Roll-off	22
Packers, Recycling	51
Tractors	65
Street Sweepers	29
Sewer cleaners, flushers, etc.	7
Construction equipment	487
Trucks, all other	842
Compressors	96
Vehicle Total	2,790
Non-automotive equipment	1,395
Total Serviced	4,185

STREET AND BRIDGE MAINTENANCE

Bridges, inspected	180
Bridges, number of openings	14,119
Pavement seal coating (square yards)	261,288
Asphalt surface by contract (tons)	3,057
Production of asphalt mixes (tons)	15,012

Average Total DPW Employees, 2003	2,400