Public Works
CITY OF LAWRENCE

# END OF YEAR REPORT 2004

Charles F. Soules, P.E.
Public Works Director

# INTRODUCTION

The divisions of Public Works provide community services (Solid Waste Division), interdepartmental support and services (Central Maintenance Garage, Building and Structures Division), infrastructure maintenance (Street Maintenance Division, Traffic and Stormwater), and oversee public improvements (Engineering Division). Public Works projects are vital to the growth, health, safety, comfort and quality of life for our community. The annual report highlights the meaningful contributions made by the employees and divisions of the Public Works Department to achieve the overall mission of the City of Lawrence.

## MISSION

We are committed to providing excellent city services that enhance the quality of life for the Lawrence community.

## VALUES

- We are committed to these basic principles:
  Integrity
  Courtesy
  Fairness
  Honesty

- How we get the job done is as important as getting the job done.

- Our interaction with the community will be professional, responsive, direct, personal, caring and appropriate.

- We will promote teamwork, employee satisfaction, and professional development in order to provide innovative, cost effective, efficient service.

*We want our citizens, clients, and customers to have high expectations of government service and we will do our best to meet and exceed those expectations.*

# ADMINISTRATION

The Administrative function of Public Works provides professional support for all divisions and employees in areas such as budget and finance, personnel administration, risk management issues, policy and program development and administration. The division is also responsible for the Public Works Department web site.

**Personnel functions**: There are 174 authorized positions in the Public Works Department. In 2004, the department recruited for 15 vacant positions. In 2003 and 2002, we filled 17 positions and 32 positions, respectively.

**Budget administration**: The Public Works Department is responsible for budget development and administration for all divisions listed below. Revenue and expenditure numbers reported below reflect those reported in the accounting system at the beginning of January and have not been audited or adjusted.

## Annual report summary information

| **EXPENDITURES** | | | | | |
|---|---|---|---|---|---|
| Fund | Division | Description | 2002 | 2003 | 2004 |
| 214 | 3800-578 | Gas Tax Fund | $ 2,829,897 | $ 2,699,707 | $ 2,471,851 |
| 001 | 2500-565 | Health Department | $ 751,082 | $ 817,073 | $ 843,737 |
| 001 | 3000-570 | Street Maintenance | $ 1,631,992 | $ 1,775,727 | $ 1,569,361 |
| 001 | 3100-571 | Engineering | $ 641,610 | $ 620,322 | $ 643,547 |
| 001 | 3200-572 | Traffic Engineering | $ 546,863 | $ 545,886 | $ 560,813 |
| 001 | 3300-573 | Airport | $ 105,069 | $ 92,534 | $ 79,962 |
| 001 | 3400-574 | Building Maintenance | $ 555,180 | $ 604,760 | $ 595,179 |
| 001 | 3600-576 | Street Lights | $ 410,878 | $ 487,601 | $ 492,262 |
| 001 | 3700-577 | Levee | $ 101,556 | $ 104,940 | $ 99,342 |
| 502 | 3510-571 | Residential Solid Waste | $ 3,427,780 | $ 3,702,330 | $ 3,853,726 |
| 502 | 3520-572 | Commercial Solid Waste | $ 3,173,900 | $ 3,558,470 | $ 3,430,455 |
| 502 | 3530-573 | Waste Reduction / Recycling | $ 631,726 | $ 768,820 | $ 780,898 |
| 504 | 3200-579 | Central Maintenance Garage | $ 1,861,765 | $ 2,001,339 | $ 2,138,213 |
| 505 | 3900-579 | Stormwater | $ 1,867,640 | $ 2,181,509 | $ 1,394,007 |
| | | **Total Public Works** | **$ 18,536,939** | **$ 19,961,017** | **$ 18,953,352** |
| **REVENUES** | | | | | |
| 214 | | Gas Tax Fund | $ 2,579,943 | $ 2,391,833 | $ 2,470,658 |
| 502 | | Solid Waste Division | $ 7,654,843 | $ 7,946,716 | $ 8,322,878 |
| 504 | | Central Maintenance Garage | $ 1,810,242 | $ 2,023,622 | $ 2,229,274 |
| 505 | | Stormwater Utility | $ 1,956,967 | $ 2,702,485 | $ 2,766,221 |
| | | | **$ 14,001,995** | **$ 15,064,656** | **$ 15,789,030** |

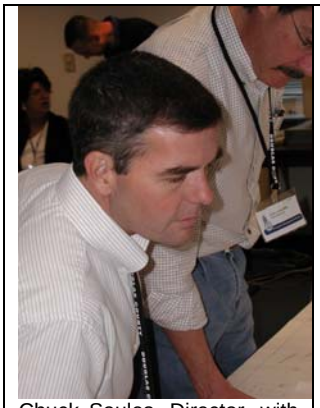
**Risk management function**: Statistics are collected by the Administrative Services Department, Risk Management office tracking a workers' compensation incidents requiring medical attention, auto accidents including claims against the City for damage to private vehicles as a result of street conditions such as potholes, and general liability claims. Details for Public Works are reported below.

| | 2002 | 2003 | 2004 | 2002 | 2003 | 2004 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|
| | Workers' Comp requiring medical attention | | | Vehicle accident claims | | | General liability claims | | |
| Building Maintenance | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Central Maintenance Garage | 1 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| Engineering Division | 3 | 6 | 2 | 1 | 1 | 0 | 1 | 5 | 5 |
| Solid Waste Division | 35 | 29 | 32 | 2 | 4 | 3 | 8 | 13 | 8 |
| Street Division | 5 | 6 | 6 | 8 | 2 | 2 | 10 | 14 | 27 |
| Total Public Works | 47 | 44 | 42 | 11 | 7 | 6 | 20 | 32 | 40 |

**Emergency management function:**

- Douglas and Wyandotte Counties received a federal disaster declaration (FEMA 1562-DR-KS) for the severe storms and flooding, August 27th to August 30th, 2004. The administrative division of Public Works completed FEMA forms necessary for reimbursement of overtime and equipment costs associated with the August storms.

- Integrated Emergency Management Course (IEMC) in Emmitsburg, Maryland. Five Public Works officials attended the IEMC in December, 2004. The course provided valuable classroom training opportunities for all staff involved, as well as extensive tabletop exercises that pushed the limits of staffing and response abilities. The department hosted a de-briefing with both city and county public works officials upon return from the training, and updated the department's response plan in accordance with lessons learned.



Chuck Soules, Director, with Keith Browning, Dg. Co. PW Director, in the Policy Work Group

Steve Stewart, David Kraus, and Bryce Campbell in the Field Command Center.

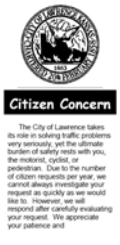
Tamara Bennett in the Operations Center.

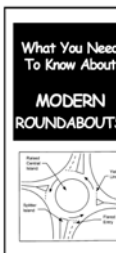
**ADA Coordinator:** The ADA Coordinator for the City of Lawrence works to insure accessibility of City facilities, services, and programs.

- Current ADA regulations require the installation of a truncated dome pattern on curb ramps which provide both tactile cues and visual color contrast, particularly meaningful for sight-impaired or low-vision pedestrians. Current engineering specifications require use of a clay-fired brick with the required truncated dome pattern in new construction. A pilot project was conducted on Louisiana to explore the utility of a product that can be applied to existing concrete ramps. Staff is evaluating both the initial cost, installation requirements, and durability over time.



**Public Works website management:** The Public Works website incorporates general information of interest to the public for the various divisions – engineering, traffic, stormwater, streets, solid waste, building maintenance, and fleet services. The web site received numerous enhancements in 2004. Construction information is updated weekly. Web pages were initiated for special project to provide timely information to the neighborhoods and other interested parties, such as web page for Kasold, Kasold North, and Harvard traffic calming.




**Other highlights and accomplishments:**

- A goal setting session was held with all supervisory personnel, facilitated by Carol Nalbandian. The goal setting process was followed with a valuable team-building exercise for division managers.

- All employees completed diversity training focused on communications between age groups and generations.

- Exchange day activities: Public Works hosted select members of the management team in solid waste collection, household hazardous waste processing, and fleet services. Three Public Works managers participated with functions in other departments – downtown flower planting, water meter reading, and daily planning functions.

- An all-employee barbeque was held in May to honor Public Works Week. Exceptional grilling skills were demonstrated by employees of the Building Maintenance Division.

- Public Works employees served on a variety of City-wide committees, including the following: the employee relations council (ERC) and related subcommittees, position evaluation committee, health care committee, web developers committee, marketing communications team, overtime review subcommittee of management team, and the benefits committee.

- Regular meetings were held with representatives of Public Works who are participating in the Employee Relations Council to facilitate communication with all employee groups.

- Terese Gorman was selected by the Kansas Chapter of the American Public Works Association to receive the George Williams Award for Excellence in Public Works in 2004. The award is intended to recognize excellence and dedication in public service by recognizing the outstanding achievements of an individual public works official. As a long time mentor, Terese was honored that George Williams was able to personally present the award.

- Charles Soules, Public Works Director, served as past-President of the Kansas Chapter of APWA.

- Terese Gorman served on the 2004 Mid-America APWA conference hosting committee.

- Tammy Bennett continued her term Treasurer of the Kansas Chapter of APWA.

# BUILDING MAINTENANCE


The Building Maintenance Division is responsible for building maintenance for municipal buildings except where such services are provided contractually. This division takes responsibility for the two multi-level parking structures and a variety of project and facility responsibilities at the airport. In addition to maintenance costs, utility costs for some buildings are paid out of this division's budget. The division provides maintenance services and/or technical support for approximately 40 facilities.

| Buildings and facilities | | |
|---|---|---|
| City Hall | Community Health Facility | Carnegie Building |
| Lawrence Arts Center | Riverfront Mall office annex | Computer Training Room annex |
| Airport Terminal | Airport Hangar A | Airport Hangar B |
| Airport Hangar C | Community Hanger | Maintenance Hangar |
| Airport (G.U.T.S) | Runway 1-19 | Runway 3-33 |
| Aiport Taxiways | Solid Waste facility | Solid Waste Annex, North |
| Fire / Med Station 1 | Douglas County Senior Center | Fire / Med Station 2 |
| Fire / Med Station 3 | Fire / Med Station 4 | Fire / Med Station 5 |
| Fire / Med Station 6 | Fire and Rescue Training | Street Maintenance facility |
| Central Maintenance Garage | ITC building | Traffic Engineering |
| New Hampshire Parking Structure | Downtown Lighting | Building demolition |
| Riverfront Parking Structure | Transit offices | HHW buildings |
| Court services annex | Health Care Access | Lawrence Public Library |

**Lawrence Municipal Airport:** The Lawrence Municipal Airport participated in the 75th anniversary celebration for the airport. Building maintenance staff facilitated building and grounds preparations for the event and established traffic and crowd control, as well as staffing the functions in whatever capacity needed.


Airport facility improvements in 2004 included: remodel of restrooms, installation of gates, paint and minor renovations of pilots lounge and terminal areas, and exterior lighting upgrades.

A white-topping project for Runway 1-19 was completed in the fall. The asphalt runway was a great candidate for the relatively new concept of white-topping. The existing asphalt was used as the base for the new 5" layer of concrete. Crack sealing and spot repair was performed before the concrete layer was added. Approximately 23,750 square yards of concrete were used. The total cost of the project was $981,900.

**Parking structures:** The City owns two multi-level parking structures. The Riverfront Parking garage has a total of 510 parking spaces on two levels. Springhill Suites by Marriott leases 110 parking spaces on the upper deck for sole use by the hotel. Over 25 spaces were reconfigured into the portico drop off area at the hotel entrance. The remainder of the upper level parking is free two-hour parking. The lower level parking is paid per day using two walk-up self-pay stations. The New Hampshire Parking garage has a total of 493 parking spaces on four levels and is served by two elevators and five stairwells. The New Hampshire structure has fire sprinkler protection on ground level. This structure also offers free two-hour parking areas and pay per day spaces using a self-pay system.

Professional engineering services are used to evaluate the parking structures and recommend repairs as needed.

**Downtown projects:** This division supervises one staff person responsible for maintaining the appearance of the two parking structures and other downtown areas, as well as assisting with snow removal and building maintenance projects. Other building maintenance staff assist on special projects, as needed. In 2004, special projects downtown focused on the 800 block walkway including repair, maintenance, and painting of guttering, poles, and fascia. Downtown lots were also re-striped, as time and weather allowed. Wiring for downtown lighting is an on-going project.

Shiela Hurst, Maintenance Worker, works downtown on curb painting and parking lot striping.

Bill Musick, Electrician, trouble-shoots downtown lighting issues.

**Building maintenance:** Much of the work completed by the Building Maintenance Division staff is emergency repair and response to nuisance situations. Many services provided by this division are provided by contractors. The Building Maintenance Manager is responsible for allocating staff between competing demands and selecting contractors, administering contracts, and monitoring the work.

| Sampling of projects, 2004 |
|---|
| Carnegie building stabilization project; boiler installation |
| Design review for new fire / medical station with administrative offices |
| Design review for new roof on the Douglas County Senior Center and Fire / Med Station 1 |
| HVAC renovation at the Investigations and Training Center |
| HVAC renovation for Information Systems back up system |
| Building specification assistance for various facilities |
| Restroom renovations, City Manager's Office, various fire facilities, solid waste offices |
| Demolition of old lab area at ITC |
| Bay heaters, exhaust fans, drop cords and emergency lighting at various fire / medical facilities |
| Lighting renovations for ITC, New Hampshire parking garage, UP and Maple St. pump houses |
| Office renovations for Planning Department and Transit |
| Equipment installation, such as kiln for Arts Center, metal brake for Garage, cameras for HHW |

# ENGINEERING DIVISION

The Engineering Division is responsible for the review and approval of all plans for streets, sanitary sewers, sidewalks, and storm sewers. The division administers these projects and inspects project construction. This division evaluates pavement condition and contracts for major pavement restoration and replacement. The Engineering Division solicits grants and other funding for major reconstruction or new construction projects.

**Infrastructure Expenditures**

In 2004, the City had budgeted $2,600,000, in all the budgeted funds combined, to use for maintenance of our infrastructure. From these budgeted funds, we spent approximately $1,500,000 milling and overlay existing streets, $1,000,000 removing and reconstructing concrete curb and gutter, and $100,000 on miscellaneous repairs such as reconstructing existing storm sewer inlets. Contracted repair and maintenance for 2004:

| ITEM | 2002 | 2003 | 2004 |
|---|---|---|---|
| Street overlay (in miles) | 13.13 | 11.60 | 10.40 |
| Curb & gutter replacement (in miles) | 9.7 | 15.2 | 10.6 |

The chart below summarizes all public infrastructure contracts administered and inspected by the Engineering Division, including overlay and curb repair, benefit districts, and private projects. Stormwater projects are detailed in the next section.

| ITEM | 2002 | 2003 | 2004 |
|---|---|---|---|
| Linear Feet of Pavement | 26,219 | 22,296 | 26,571 |
| Linear Feet of Curb & Gutter* | 98,446 | 99,617 | 104,689 |
| Linear Feet of Storm Sewer | 18,440 | 14,495 | 6,481 |
| Linear Feet of Sanitary Sewer | 24,257 | 22,989 | 46,117 |
| Linear Feet of 4" x 5' Sidewalk* | 22,292 | 19,205 | 34,383 |
| Linear Feet of 4" x 6' Sidewalk* | 16,798 | 6,836 | 5,550 |
| Linear Feet of 10' x 6" Rein. Rec. Path | 7,630 | 6,021 | 0 |
| Linear Feet of Milling | 54,252 | 119,728 | 54,945 |
| Linear Feet of Asphalt Overlay | 55,782 | 119,728 | 54,945 |
| Linear Feet of Retaining Wall | 331 | 0 | 1374 |
| Square Yards of 3.5" White Topping | 470 | 2650 | 0 |
| Traffic Signal | 2 | 3 | 4 |
| Accessible curb ramps* | | | 184 |
| Structures | 4 | 0 | 0 |
| **TOTAL COST OF PROJECTS** | $10,639,922 | $11,913,844 | $8,260,330 |

*new construction and removal / replacement

Several major projects were undertaken in 2004 – two of which are highlighted below.

**Barker neighborhood:** The 19th and Barker project involved the reconstruction of an intersection of a collector and a minor arterial street. The existing intersection was a four-way stop that experienced tremendous traffic delays at peak hours. It was identified as a high accident location and warrants for the installation of a traffic signal were met. The intersection was adjacent to a priority area to be addressed for stormwater management. Extensive community involvement resulted in a project design for the intersection that included a roundabout in lieu of signalization. Other project components included pedestrian refuge islands as traffic calming for several blocks both north and south of the highlighted intersection. A stormwater project was bid simultaneously with the intersection improvement. Construction was coordinated to minimize disruptions to the neighborhood and maximize the total benefits for both traffic and stormwater management.



**O'Connell Road reconstruction**: O'Connell Road Project was a complete reconstruction of one mile of county road. The project was a partnership between the City of Lawrence, Kansas and KDOT. O'Connell Road, also known as E 1600 Road, was a two-lane county road with open ditches located in southeast Lawrence. The project extended from 23rd Street/Kansas Highway 10 at the north end to 31st Street/N 1300 Road at the south end. The project consisted of reconstructing an old, high maintenance chip seal two-lane roadway into a roadway that would meet city standards. O'Connell road was designed as a 40 mph collector street. The new roadway section has 3-lanes, 2 bike lanes, curb and gutter and sidewalk. In addition, an enclosed storm sewer system replaces open ditches. A beautiful, functional roundabout was constructed at 28th Street & O'Connell Road, which is a collector-collector intersection.



## Pavement Management Program

A full-time Assistant City Engineer was hired in mid-2003. Approximately 50% of this employee's time is dedicated to the development and implementation of a pavement management program. The City of Lawrence's pavement management system will be based on the analysis of databased pavement condition information. This pavement condition data is being attained through the use of an objective pavement condition survey. The pavement condition survey has been developed to identify existing visual pavement distresses on flexible, composite, and rigid pavement types. The objectives of this pavement condition survey are to determine the present condition of pavement in terms of surface condition and apparent structural integrity, to provide a common condition index for comparing the status of all pavements, and a means to provide justification for performing pavement maintenance and repair projects, along with the evaluation of current design standards.

A pavement condition survey manual was completed in 2004. This manual gives the procedure and guideline criterion for performing a pavement condition survey, to ensure uniformity in data collection. Continuing the initial data set collection is the primary focus of 2005 for the pavement management system, with a projected completion date at the end of summer. Currently, 162 of the 305 city street miles have been surveyed.

**Samples of pavement conditions displayed in the manual:**

Example of high severity rutting and shoving on a composite pavement

Example of high severity transverse reflective cracking on composite pavement

Example of a high severity fault failure in a rigid pavement

Information collected from these surveys is entered into a geo-database structure and will be utilized for future analysis. The pavement management system will be used to demonstrate the benefits associated with the timely use of preventative maintenance and repair techniques on street pavements. These benefits will include the ability to determine where and what type of preventative maintenance is needed and, when applied, result in an improved overall pavement condition of the City's streets, a reduction of preservation costs, and an extension of the pavement life cycle.

Each month, reports are provided to the City Manager on progress and target areas for continued survey.

## Stormwater maintenance and administration

The stormwater maintenance crew continued to focus on curb inlet replacement, debris removal and channel reconstruction projects.

Alley reconstructed after sewer replacement, 8th and Maine

Debris removal northeast of Brook Creek Park

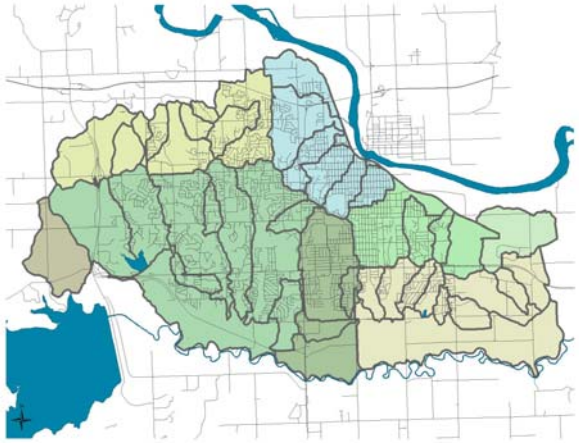


Reconstruction of curb inlets and storm sewers, 12th and Ohio

Channel reconstruction southwest of 27th and Iowa

The Stormwater Engineer reviews drainage studies, plats, site plans, development plans and construction drawings related to development projects. All records are being converted to scanned, digital storage that is referenced within the GIS system. The stormwater engineer also completed a project to map Lawrence's major watersheds for use in planning and education.

Stormwater records scanned and referenced within GIS maps



Major watersheds mapped for planning and public education

The Stormwater Quality Technician is responsible for implementing the 2001 Stormwater Pollution Prevention ordinance. Construction site controls were enforced with greater consistency and attention. Stormwater education was a central theme in the 2004 Earth Day Festival. Administrative support reviews and corrects stormwater fees charged to landowners. GIS aerials and an account database are used to find changed accounts, new accounts or incorrect information.

Heavy rainstorms in the summer generated dozens of calls from residents. The Stormwater Division spent several weeks responding to these calls.

**Major stormwater projects completed or underway**

Capital Improvements were a major focus during 2004. Several flood control projects were completed or bid as a result of $7.7 million in funding provided in 2002. The Stormwater Engineer coordinated consulting, design, plans, public meetings, land acquisition, bidding and inspection for these projects.

The final phase of the 21st Street, Kentucky to Barker Court Storm Sewer Improvement was substantially complete by the end of 2004. The work was coordinated with construction of a roundabout on East 19th Street.

The 13th and Oregon Storm Drainage Improvement project was bid in December, 2003. This project will be completed in mid 2005 at a total cost of $3.9 million.

A major engineering study of North Lawrence drainage was initiated in early 2004 and will be completed in mid 2005.

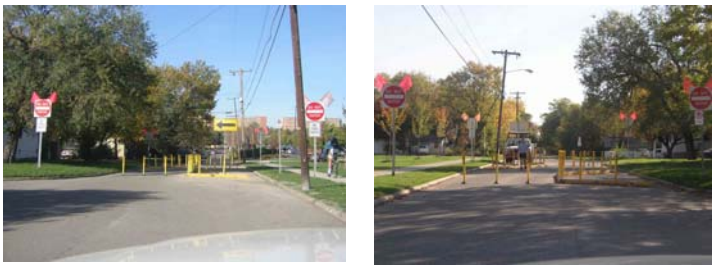
## Traffic Engineering and operations

The Traffic Engineering Division reviews plats and site plans, street plans, analyzes traffic data, and provides professional and technical data to the Traffic Safety Commission. Field crews are responsible for signal maintenance, signal timing, street signs, and pavement markings. The Traffic Engineer also works with community and neighborhood groups to address specific concerns.

| STATISTICS | 2003 | 2004 |
|---|---|---|
| Traffic Signals Maintained | 80 | 81 |
| School Beacons Maintained | 27 | 27 |
| Traffic Signal Work Orders Completed | 1425 | 645 |
| Traffic Sign/Pavement Marking Work Orders Completed | 2232 | 1362 |
| Electronic Traffic Counts Conducted | 284 | 394 |
| Manual Traffic Counts Conducted | 79 | 60 |
| School Crossing Counts Conducted | 60 | 138 |
| Traffic Safety Commission meetings administered | 10 | 11 |

Some of the highlights and accomplishments of Traffic Engineering for 2004 include:

- Continued upgrade of school signs from black/yellow to black/fluorescent yellow-green.
- Installed additional temporary traffic calming devices in the University Place Neighborhood and the Harvard Road Neighborhood.
- Worked with a variety of neighborhoods and localized areas on traffic calming planning, such as West Lawrence Neighborhood Association, Park Hill neighborhood, Breezedale neighborhood, and the Carmel Drive and Wimbledon area.
- Traffic signal upgrades completed at 6th Street & Lawrence Avenue and 6th Street & Kasold Drive.
- Continued upgrade of pedestrian signals to Light Emitting Diodes.
- Reevaluated and optimized traffic signal coordination plans throughout the city.
- Finalized design for a traffic signal at 7th Street & Kentucky Street.
- Continued a program of providing countdown timers at signalized pedestrian crossings.
- Developed a traffic calming policy and a traffic calming ranking system (draft).
- David Woosley continued serving on the Institute of Transportation Engineers Traffic Engineering Council Executive Board, and on the International Municipal Signal Association Central Section Executive Board.
- Debbie Rollins served as past-President of the International Municipal Signal Association (IMSA) Central Section.



Traffic calming in University Place Neighborhood

# FLEET SERVICES / Central Maintenance Garage

The Central Maintenance Garage operates as an internal service fund to provide fuel, management, and repair services for the City's fleet of vehicles and equipment. The maintenance facility is located at 11th and Haskell. Fuel stations are located at 11th and Haskell and the "west 40" property near 18th and Wakarusa. The fleet included 631 units at the end of 2004.

**Repairs and Maintenance**

Productivity: One goal set for this year was to reach a productivity level of 70% preventative maintenance and 30% repairs. The intent of this goal is to identify and repair more problems while the unit is in for routine maintenance, thus reducing downtime and unscheduled repairs. The garage continues to make progress toward this goal. The chart below shows the percentage of repairs versus preventative maintenance based on hours and dollars billed against the two types of work orders.

| percentage of work | 2002 | 2003 | 2004 |
|---|---|---|---|
| Repairs | 53.0% | 51.6% | 50.3% |
| Preventive maintenance | 38.0% | 48.4% | 49.7% |

Service calls: Another key goal for the division is to reduce the number of service calls. Some service calls are unavoidable, such as accidents and punctured tires. Generally, a reduction in service calls indicates a higher level of reliability in the fleet. In 2004, there was a reduction in the number of tire calls and a slight increase in the number of service calls. With the fleet increasing by 16 units, this represents an improvement in reliability.

| Service calls | 2002 | 2003 | 2004 |
|---|---|---|---|
| Tire repairs | | 64 | 51 |
| Break-downs | | 209 | 214 |
| Total | | 273 | 265 |

**Highlights and accomplishments:**

- Walk in doors: The walk in doors on the north end of the building and the door and window in the fuel station at 1140 Haskell Ave were replaced as part of the continuing effort to improve the energy efficiency and security of the facility. The furnace in the tire shop and in the hose room were replaced.

- Fuel station update: The fuel system was upgraded in late 2003, with initial system installation in early 2004. Some components like the AIM system (automated information management) did not perform as well as

New walk-in doors, north side.

expected and were replaced by the manufacturer. The new AIM package will be easier to install and more accurate than the old system because it ties directly to the vehicle computer.
In addition, the fuel tanks at the West Forty were repainted in 2004.


West 40 fuel tanks

- Diagnostics: The increasing size and complexity of the fleet requires regular updating of diagnostic equipment. The garage is equipped with software packages to diagnose concerns with Caterpillar, International, and Mercedes engines, in addition to Ford and General Motors. In 2004, the shop purchased a Snap-On Modis, allowing the technicians to scan the computer for codes, monitor real time data and snap shot several frames of data if a malfunction occurs.


Modis scanner and lab scope

- Computers: The main server for the garage was purchased in late 2003 and fully operational in late summer 2004.

- Ironworker: The garage purchased a small iron worker this year. The piece of equipment allows a technician to punch bolt holes, cut or bend a piece of steel up to 1/4 inch thick. Any of these operations can be performed in a matter of minutes. This allows for much faster and safer metal fabrication for repairs to many systems on fleet vehicles.


Chad Heston uses the Ironworker

- Recycling: The Central Maintenance Garage is actively engaged in recycling and the handling of materials in the most environmentally friendly ways feasible for the operations.

    - Used oil products: 2,225 gallons burned in waste oil heater and 3,445 gallons recycling through Midland Clearwater Refinery.
    - Antifreeze: 495 gallons recycled from fleet vehicles. Recycling coolant is environmentally friendly and saves money. The average cost of virgin coolant in 2004 was $1.28 per quart. Recycling our anti-freeze cost only $.54 per quart. A savings of $1,469.16 for the 495 gallons recycled.
    - Batteries: All automotive batteries are recycled by Interstate Battery. Flashlight type batteries are recycled through the HHW program.
    - Mercury switch program: Mechanics continue to check city vehicles for the presence of mercury switches as part of the preventive maintenance program. Most of the switches are in the form of under hood and trunk lights, typically on older vehicles. Mercury switches are removed and recycled through Solid Waste Division. While mechanics continue inspecting, no mercury switches were found in 2004.

- Motor pool operations: Central Maintenance reduced the motor pool to five vehicles and one tow behind air compressor in stock and available for rental to departments. These vehicles are older units and include a seven-passenger van, Ford Taurus, 1 ton, and two pickups. The motor pool rentals totaled 228 days this year at an income of $4560.

- Joint purchasing: The central maintenance garage continues to work closely with finance by participating in the MACPP cooperative vehicle bid process. All standard vehicles are now purchased under this program. All surplus vehicles are now sold on E-bay. Alan Landis handles the sale. Inquiries are directed to the garage and assistance is rendered as needed.

| FLEET STATISTICS | 2002 | 2003 | 2004 |
|---|---|---|---|
| Miles driven | | | |
| Police Department | 1,087,347 | 1,086,026 | 1,145,061 |
| Public Works | 987,455 | 990,384 | 994,534 |
| Fire Medical | 297,166 | 276,849 | 267,089 |
| Utilities Department | 285,157 | 284,352 | 382,537 |
| Parks and Recreation | 270,086 | 267,520 | 271,632 |
| Miscellaneous (admin., BI, plan., etc) | 201,331 | 197,052 | 113,828 |
| **Total miles** | **3,128,542** | **3,102,183** | **3,174,681** |
| Off road equipment usage (hours) | 27,856 | 18,872 | 22,656 |
| Operations | | | |
| Repair orders completed | 2,298 | 2,444 | 2,332 |
| Preventive maintenance orders completed | 996 | 1,017 | 1,036 |
| Billing | | | |
| Total number of hours billed | 12,893 | 13,575 | 13,575 |
| Total labor (in dollars) | 602,660 | 603,666 | 612,085 |
| Total parts (in dollars) | 598,539 | 628,082 | 678,414 |
| Commercial (sublet) (in dollars) | 77,214 | 106,488 | 112,733 |
| Miscellaneous | 1,992 | 24,312 | 23,688 |
| Total dollars billed for repairs | 1,370,772 | 1,376,124 | 1,440,140 |
| Fuel system | | | |
| Total fuel sold for year (gallons) | 441,870 | 441,717 | 455,653 |
| Total diesel fuel sold (in dollars) | 275,939 | 317,574 | 400,517 |
| Total unleaded gasoline sold (in dollars) | 295,032 | 330,252 | 396,082 |
| Total fuel sales (in dollars) | 570,971 | 647,826 | 796,600 |
| Total Operational Billing | 1,943,233 | 2,011,192 | 2,225,058 |

## Central Maintenance Garage photos for 2004:

**Central Maintenance Garage**

**1141 Haskell Avenue**

Jim Sparkes welding a wear plate in the hopper of a rear load refuse truck.

Brake replacement on Caterpillar motor-grader unit 346

Tim Hays adjusting the air intake on a fire truck.

Chad Hoobler diagnosing a fuel injection problem.

Our equipment is in PEAK condition.
Parks Department employees move a climbing rock with the Central Maintenance forklift.

# SOLID WASTE DIVISION

The Solid Waste Division represents an enterprise fund, or utility, created for the purpose of managing the solid waste for the City of Lawrence. Comprehensive solid waste services are provided for residents, businesses, and industry. Services include collection, disposal, recycling, and technical assistance.

The following chart provides a brief comparison for all services combined:

| Tons collected | 2002 | 2003 | 2004 |
|---|---|---|---|
| Tons collected for disposal | 67,784 | 68,731 | 71,589 |
| Tons (est.) collected for recycling / composting | 10,846 | 12,766 | 12,808 |

In 2003, Lawrence achieved a 34% recycling rate which is one of the highest in the state and is higher than the national average for that year. The recycling rate is likely to be similar in 2004. (The Annual Recycling Report will be prepared in the spring when final numbers are available.)

The Solid Waste Division is comprised of three functional divisions: Residential Collection; Commercial Collection (which includes Maintenance Operations); and Waste Reduction and Recycling (WRR).

**Residential Collection**

The number of housing units continued to grow at a high rate in 2003 and 2004, which has a significant impact on our residential services. Sixteen three-member rear-loader crews pick up the residential waste. These crews also pick up all rear-loader commercial waste along their residential routes as well as the grass and leaves for composting.

The chart below highlights some of the residential collection activity.

| | 2002 | 2003 | 2004 |
|---|---|---|---|
| Roll-out carts | 4,765 | 5,294 | 5,607 |
| Bulk items collected | 4,236 | 4,138 | 4,588 |
| Freon containing items | 589 | 640 | 595 |
| Tires collected | 2,791 | 2,678 | 1,991 |

Notes on the services mentioned above: Roll-out trash carts are rented to customers in two sizes, 90 and 65 gallon. The carts allow for automated collection, reducing the potential for injury to the solid waste loaders. Bulky items, including refrigerators and air conditioners, are collected by appointment. The Division is required by Federal law to

recover freon from refrigerators and air conditioners that are collected. Freon was recovered in-house by certified technicians from Maintenance Operations. Tires are collected by appointment at no cost to residents (limit of 5 per household per year). Whole tires are not permitted to be disposed in the landfill. The tires were picked up from the Solid Waste facility by private companies and then shredded and monofilled (65%) or recycled (35%) at a cost to us of $2,350.75.

Residential crews performed alley litter collections on Fridays on a rotating basis among neighborhoods with alleys. Downtown alleys were patrolled for litter on every Friday.

Several neighborhood cleanups were performed at the request of and in coordination with neighborhood associations. These were the Pinckney neighborhood, Old West Lawrence, and North Lawrence neighborhoods. Most were done on Fridays because the neighborhoods can avoid paying additional costs for Division personnel and equipment, which they must pay if they have us participate on a Saturday.

Residential collection situations

## Commercial Collection

Growth in the commercial sector continued with new businesses, strip malls, apartment houses and other entities requiring waste collection services. The Division reviewed

numerous site plans for accessibility, location of refuse containers, and type of service required and made comments to the Planning Department as necessary.

Additional inventory of collection containers purchased last year (with total inventory in parentheses) include:

Rear-loader containers – 150 (1,964)
Front-loader containers – 0 (532)
Roll-off containers – 16 (296)

Maintenance Operations maintains existing containers, prepares new containers for service, and delivers containers to new locations. They also do routine maintenance on collection vehicle packer bodies and other equipment used within the Division. A weekly schedule for packer maintenance has been followed since 2002.

Roll-off solid waste services are an important part of our commercial service delivery. The chart below highlights roll-off activity:

| | 2002 | 2003 | 2004 |
|---|---|---|---|
| Roll-off service calls | 6,099 | 6,499 | 6,884 |
| Permanent accounts | 63% | 66% | 69% |
| Revenue from roll-off service | 1,238,655 | 1,319,593 | 1,379,034 |

The Division continued promoting the expansion of its compactor leasing program in 2004. The total number of customers leasing containers from the Solid Waste Division at the end of 2004 was fifteen, up from eleven in 2003.

The Division continued the rate audit of downtown businesses concentrating in the 900 blocks of Massachusetts and New Hampshire. Periodic rate reviews are necessary in the downtown area due to the changing businesses. Also many businesses use shared containers located on city-owned right-of way or parking lots. Those rates are determined by square-footage of the business and type of business.

Rear-load dumpster operations

## Waste Reduction and Recycling

Mollie Mangerich, Waste Reduction and Recycling Supervisor, was elected to the Board of Directors of the Kansas Sunflower Chapter of the Solid Waste Association of North America (SWANA) for a two-year term.

Waste Reduction and Recycling (WRR) expanded on existing collection programs, made program improvements, and added new programs in 2004. The Annual Recycling Report is produced in the spring when all final data is available so the numbers here are approximate for many materials.

The chart below highlights some of the programs in which the Waste Reduction and Recycling staff is involved. These programs are typically implemented as a partnership between WR/R staff and the operations side of Solid Waste for collection and processing.

| | 2002 | 2003 | 2004 |
|---|---|---|---|
| Grass and leaves collected | 8,000 | 9,750 | 9,670 |
| Avoided disposal (est) costs in $$ | 153,000 | 244,523 | 245,280 |
| Christmas trees collected (tons) | 38 | 33 | 23 |
| HHW/SQG program collections (lbs.) | 100,000 | 9,800 | 130,000 |
| HHW participants served | 2,016 | 1,761 | 2,566 |
| SQG participants served | 24 | 51 | 83 |
| Old Corrugated Cardboard OCC (tons) | 641 | 658 | 750 |
| Old Newspapers ONP (tons) | 704 | 790 | 822 |
| Sorted Office Paper SOP (tons) | 19 | 16 | 31 |

Yard trimmings pilot program: The pilot program has been a multi-year effort to provide volunteer households with compostable bags to educate citizens and monitor effectiveness at changing behavior. In 2004, 370 households participated in the compostable bag pilot program. The program has raised the rate of "preferred" containers (carts, cans or compostable bags instead of plastic) being set out to 43% compared to 25% a year ago. Plastic bag use for yard waste in 2005 will not be accepted. All yard trimmings will have to be placed in preferred cans, carts or compostable bags.

Household hazardous waste (HHW) program: The HHW program remains an important component of solid waste services in reducing the potential toxicity of the materials taken to the landfill. The program underwent significant operational changes in 2003 – transitions from a weekend collection event to a standardized service by appointment. In 2004 a grant from the State was received which will primarily finance a new storage building for HHW. Participation by households in HHW and businesses and institutions in the Small Quantity Generator (SQG) collection program increased from 1,761 in 2003 to 2,566 participants in 2004.

Compost program and facility: A new site was opened on East 11th Street for use by the compost program. The facility provides improved access and a hard surface for storing and processing materials. The additional space allows for more efficient processing of materials and a better grade of overall compost. The third annual compost giveaway was postponed due to contamination from the herbicide Clopyralid. A giveaway is planned for 2004 since the level of Clopyralid has decreased to acceptable levels. Much of the compost produced was or will be utilized in city projects.

Sorted office waste paper (SOP) program: The Sorted Office Paper (SOP) collection program which was initiated in 2002 continued to grow. One-hundred and nine businesses, offices and schools were served on a scheduled basis and 31 tons of SOW were collected which is nearly double that collected in 2003.

WRR is responsible for monitoring the success of the Environmentally Procurement Policy.

Public education and outreach remained a strong component of WRR activities. Events in 2004 included the Parade for the Earth, Home Energy Conservation Fair, the Lawrence Sesquicentennial celebration, as well as speaking at more than 30 different venues and giving tours of the recycling facility to interested groups.

| CITY OPERATED RECYCLING DROP OFF SITES | |
|---|---|
| Old Newspaper (ONP) | |
| Checkers Food Store | 2300 Louisiana |
| Hillcrest Shopping Center | 9th and Centennial |
| Hobby Lobby | 1801 W. 23rd |
| Hy-Vee Food Store | 3504 Clinton Parkway |
| Hy-Vee Food Store | 6th and Monterey Way |
| Lonnie's Recycling | 501 Maple |
| Prairie Park Elementary School | 2711 Kensington |
| Westlake's Ace Hardware | 6th and Kasold |
| Douglas County Bank | 9th and Kentucky/Tennessee |
| Old Corrugated Cardboard (OCC) | |
| Hy-Vee Food Store | 6th and Monterey Way |
| Hy-Vee Food Store | 3504 Clinton Parkway |

**Highlights and accomplishments:**

The Solid Waste Division continued to increase its emphasis on training and safety.

- The Division has a meaningful, constructive safety program which rewards those who have not been cited for any unsafe procedures over each six-month period. The program is designed to be easy to use and avoid pitfalls of unfair treatment and "scoring". It is all or nothing; employees must perform safely with no unsafe acts for the review period in order to receive a safety award.

- All collection personnel were outfitted in yellow safety vests in 2004 which enhance the visibility of these employees to motor vehicle operators.

- Driver training programs included a training course for prospective drivers, driving in snow and ice (all drivers), procedures for backing and maneuvering in restricted spaces (all collection personnel), as well as targeted training for individuals who commit an unsafe act or procedure.

- Periodic training sessions were held on the proper procedures for emptying containers and carts. These were conducted with a few crews at a time to allow for hands on training and discussion.

- Guidelines are established requiring trucks to maintain a speed of 5 mph below the posted speed limit.

- General safety sessions are held on a regular basis covering specific items for short periods, usually at the beginning of a work shift.

- Eight individuals received annual hazardous waste training. Two received 24-hour training which makes them eligible to work with HHW at our facility, and six received annual 8-hour refresher training as required by law.


Bundled cardboard and paper wastes for recycling


Product reuse


Kathy Richardson, HHW Specialist


Sunflower first grade class


Button batteries from HHW

# STREET MAINTENANCE DIVISION

The Street Maintenance Division is responsible for the routine maintenance of the City's streets, alleys, curbs, and gutters. The budget provides funds for concrete, asphalt, sand, rock, and salt for snow and ice control. Additional funds are budgeted for outside firms to assist in removing snow. The work crews require the use of a variety of equipment and vehicles. The cost of equipment maintenance and fuel is in this budget.

**Highlights and accomplishments:**

The majority of work completed by the division is routine maintenance and small projects that are not cost effective to contract. The details of the maintenance work are listed in the table on the following page. Other notable projects included:

- Re-design and reconstruction of Timberedge Road. Removal of asphalt pavement, expansion of intersection radius, and reconstruction with concrete used over 550 hours of labor.

- New floor installation for the salt storage dome at 1120 Haskell. Removal and replacement of the floor required 178 labor hours and used 90 cubic yards of material.

- Completion of preparatory work for the City's chip and seal contract for the year. Where feasible, the streets were prepared using a coarse aggregate asphalt mix. The chip seal surface was applied by contract over the coarse aggregate.

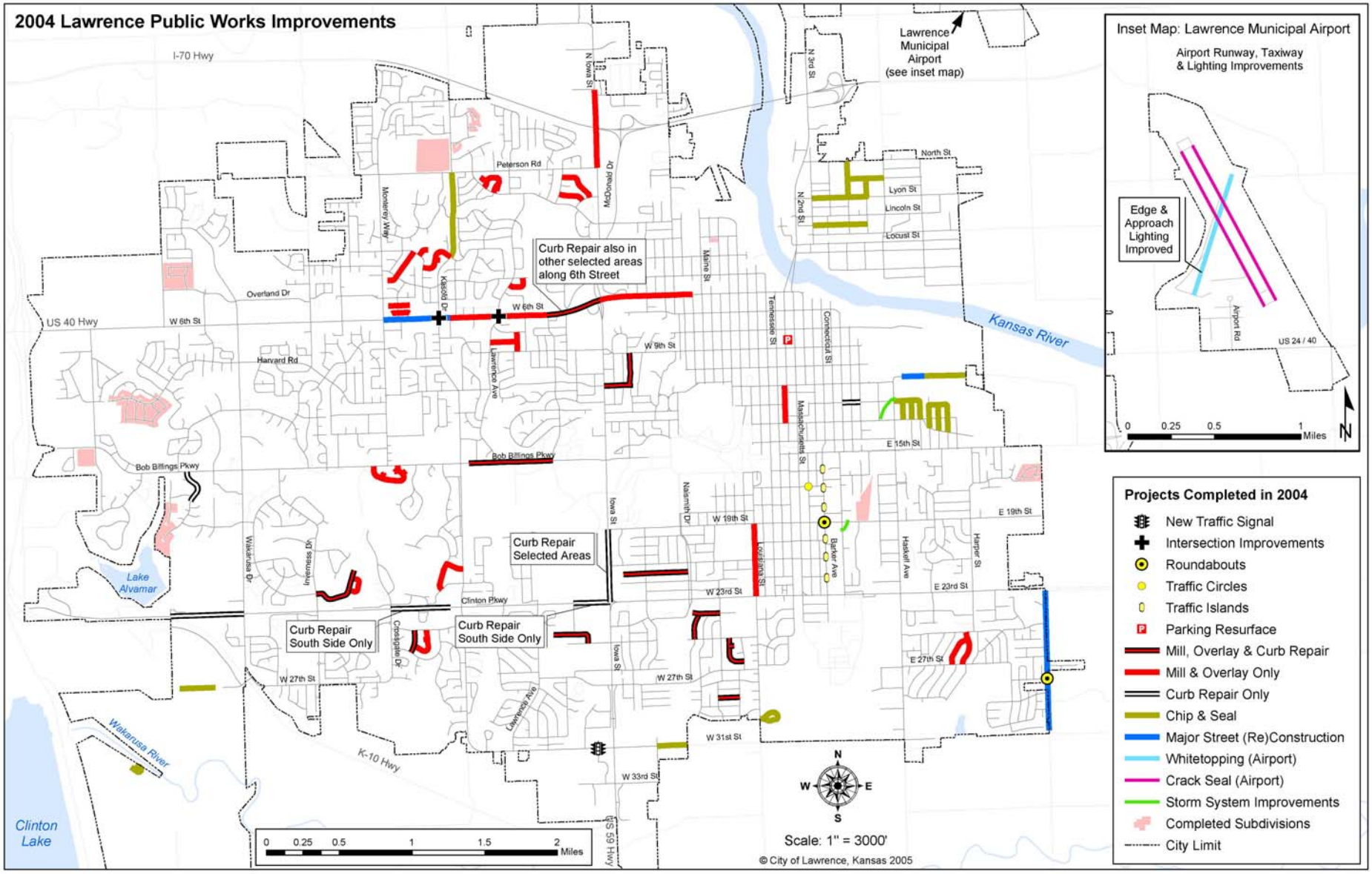
- Ranger Drive repairs. What appeared to be a routine maintenance project turned into a major overhaul of the infrastructure in the area due to the advanced state of deterioration. Reconstruction and repairs were completed on pavement, curbs, sidewalks, driveways and catchbasins, using a total of 696 labor hours.

- Upgraded Cartegraph Work Director System and converted historical data.

Reconstruction of pedestrian crossing outside City Hall

Preparation for snow and ice control practice day

| STREET MAINTENANCE STATISTICS | 2002 | 2003 | 2004 |
|---|---|---|---|
| Paving projects | | | |
| Number of projects | 13 | 16 | 23 |
| Tons of asphalt placed | 1,986 | 3,649 | 2,687 |
| Lineal feet of pavement replaced | 7,950 | 14,608 | 10,748 |
| Labor hours used | 1,170 | 2,884 | 2,034 |
| Patching pot holes / pavement | | | |
| Number of calls to Pot Hole Hot Line | 5,301 | n/a | 814 |
| Tons of patch material placed | 3,657 | 1,623 | 7,574 |
| Labor hours used (temporary patches) | 1,351 | 981 | 2,737 |
| Labor hours used (regular patches) | 5,167 | 4,860 | 1,476 |
| Curb replacement | | | |
| Lineal feet of curb replaced | 1,735 | 3,855 | 4,253 |
| Labor hours used | 633 | 1,407 | 1,552 |
| Valley gutter replacement | | | |
| Number of projects completed | 22 | 29 | 19 |
| Cubic yards of material placed | 568 | 467 | 535 |
| Labor hours used | 2,191 | 2,656 | 2,623 |
| Street Sweeping | | | |
| Lane miles completed | 8,003 | 5,380 | 4,350 |
| Labor hours used | 5,280 | 4,706 | 4,442 |
| Crack sealing | | | |
| Pounds of material used | 26,990 | 17,040 | 15,480 |
| Lineal feet of cracks sealed | 94,465 | 59,640 | 54,180 |
| Labor hours used | 1,985 | 1,630 | 1,230 |
| Guardrail replacment | | | |
| Feet of guardrail replaced | 1,125 | 113 | 100 |
| Labor hours | 730 | 112 | 108 |
| Mowing activities | | | |
| Right of way and drainage area acres | 4,070 | 4,906 | 1,200 |
| Labor hours used (ROW and drainage) | 370 | 446 | 284 |
| Levee acres mowed | 19,140 | 10,252 | 26,000 |
| Labor hours used (levee) | 1,740 | 932 | 2,363 |
| Aiport acres mowed | 9,713 | 8,932 | 4,500 |
| Labor hours used (airport) | 883 | 812 | 732 |
| Snow removal | | | |
| Number of storms requiring 24-hour operations | 6 | 7 | 5 |
| Number of storms requiring plow operations | 2 | 2 | 2 |
| Snow hauled from central business district | 1 | 0 | 1 |
| Labor hours used | 3,845 | 6,686 | 5,387 |
| Tons of material spread | 4,036 | 7,158 | 5,557 |


2004 Lawrence Public Works Improvements
I-70 Hwy
US 40 Hwy
Lawrence Municipal Airport (see inset map)
Curb Repair also in other selected areas along 6th Street
Curb Repair Selected Areas
Curb Repair South Side Only
Curb Repair South Side Only
Kansas River
Lake Alvamar
Clinton Lake
Wakarusa River
K-10 Hwy
Bob Billings Pkwy
Clinton Pkwy
Peterson Rd
Overland Dr
Harvard Rd
W 6th St
W 9th St
W 19th St
W 23rd St
W 27th St
W 31st St
W 33rd St
E 15th St
E 19th St
E 23rd St
E 27th St
North St
Lyon St
Lincoln St
Locust St
Monterey Way
McDonald Dr
Kasold Dr
Lawrence Ave
Maine St
Tennessee St
Connecticut St
Massachusetts St
Louisiana St
Barker Ave
Haskell Ave
Harper St
Naismith Dr
Iowa St
Crossgate Dr
Wakarusa Dr
Lawrence Ave
N 2nd St
N 3rd St
N Iowa St
0 0.25 0.5 1 1.5 2 Miles
Scale: 1" = 3000'
© City of Lawrence, Kansas 2005
Inset Map: Lawrence Municipal Airport
Airport Runway, Taxiway & Lighting Improvements
Edge & Approach Lighting Improved
Airport Rd
US 24 / 40
0 0.25 0.5 1 Miles
Projects Completed in 2004
New Traffic Signal
Intersection Improvements
Roundabouts
Traffic Circles
Traffic Islands
Parking Resurface
Mill, Overlay & Curb Repair
Mill & Overlay Only
Curb Repair Only
Chip & Seal
Major Street (Re)Construction
Whitetopping (Airport)
Crack Seal (Airport)
Storm System Improvements
Completed Subdivisions
City Limit