



City of Lawrence  
PUBLIC WORKS

# END OF YEAR REPORT 2014

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Public Works Director



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## Letter from the Director



The divisions of Public Works provide core services 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

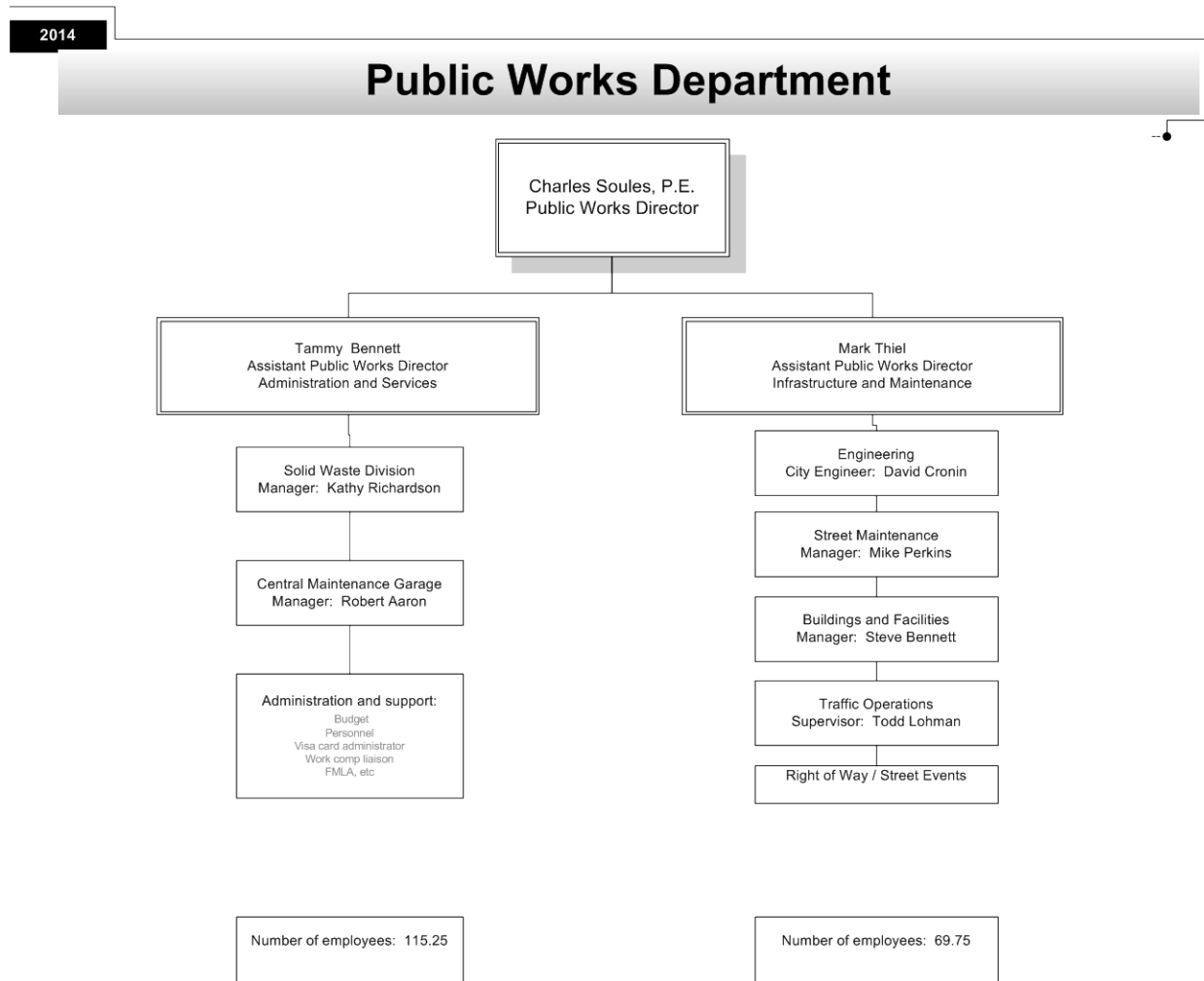
- We are committed to these basic principles:
  - Integrity
  - Courtesy
  - Fairness
  - Honesty
- How we get the job done is as important as getting the job done.
- Our interaction with the community will be professional, responsive, direct, personal, caring and appropriate.
- We will promote teamwork, 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.*

Thank you for investing some of your time to read about the work put forth by the men and women of Public Works. We look forward to continuing to provide exceptional services for the Lawrence community.

# GENERAL ADMINISTRATION

The Public Works Department is organized by core services: administration and services, infrastructure and maintenance. A summary organizational chart is included below for quick reference.



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 website administration.

**Personnel functions:** There were 185 authorized positions in the Public Works Department. In 2014, the department recruited for 25 vacant positions, including promotional opportunities. Five positions that had been held vacant were filled, and one new position created to implement curbside recycling in 2014.

**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.

<b>EXPENDITURES</b>						
Fund	Division	Description	2012	2013	2014	
001	3000	Street Maintenance	\$ 2,923,691	\$ 2,957,228	\$ 3,265,498	
001	3010	Engineering	\$ 836,314	\$ 946,054	\$ 1,005,419	
001	3020	Traffic Engineering	\$ 621,928	\$ 677,154	\$ 723,893	
001	3030	Airport	\$ 155,909	\$ 200,629	\$ 193,686	
001	3040	Building Maintenance	\$ 823,664	\$ 850,479	\$ 870,355	
001	3060	Street Lights	\$ 703,508	\$ 726,009	\$ 870,073	
001	3070	Levee	\$ 119,073	\$ 140,067	\$ 193,987	
001	2500	Health Department	\$ 964,871	\$ 978,818	\$ 1,006,096	
214	3800	Gas Tax Fund	\$ 2,347,104	\$ 2,296,171	\$ 2,544,917	
502	3515	Solid Waste Division	\$ 9,898,677	\$ 9,439,079	\$ 9,472,467	
502	3530	Waste Reduction / Recycling	\$ 1,034,058	\$ 918,127	\$ 1,233,443	
503	2330	Public Parking / Public Works	\$ 220,087	\$ 187,498	\$ 253,590	
504	3210	Central Maintenance Garage	\$ 3,783,591	\$ 3,958,847	\$ 3,997,492	
504	3899	Stormwater	\$ 2,964,837	\$ 2,726,126	\$ 2,864,871	
604	3400	Farmland Remediation	\$ 366,326	\$ 647,513	\$ 403,336	
<b>Total Public Works</b>			<b>\$ 27,763,638</b>	<b>\$ 27,649,800</b>	<b>\$ 28,899,123</b>	
<b>REVENUES</b>						
214		Gas Tax Fund	\$ 2,525,368	\$ 2,491,425	\$ 2,575,911	
502		Solid Waste Division	\$ 11,015,334	\$ 11,049,547	\$ 11,681,969	
504		Central Maintenance Garage	\$ 3,784,572	\$ 3,832,990	\$ 3,756,894	
505		Stormwater Utility	\$ 2,975,078	\$ 2,978,326	\$ 3,025,147	
			<b>\$ 20,300,352</b>	<b>\$ 20,352,288</b>	<b>\$ 21,039,921</b>	

**Risk management function:** Statistics are collected by the Risk Management office, which tracks all 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.

	2012	2013	2014	2012	2013	2014	2012	2013	2014
	<b>Workers' Comp</b>			<b>Vehicle accident</b>			<b>General liability</b>		
Building Maintenance	3	2	0	0	2	0	0	0	1
Central Maintenance Garage	4	1	3	0	2	1	2	1	0
Engineering Division (& traffic)	1	2	1	5	0	1	6	6	0
Solid Waste Division	27	27	26	6	9	18	10	3	28
Street Division (& storm ops)	11	3	4	1	3	10	16	5	9
<b>Total Public Works</b>	<b>46</b>	<b>35</b>	<b>34</b>	<b>12</b>	<b>16</b>	<b>30</b>	<b>34</b>	<b>15</b>	<b>38</b>

## Emergency management function:

The Public Works Department is a first responder for disaster events in the community. Department staff has experience locally and assisting other communities with situations ranging from area flooding to tornado response to severe winter storms.

The Assistant Director of Public Works / Administration and Services has served as a member of the Lawrence Douglas County Local Emergency Planning Committee since 2005. In 2014, preparedness efforts focused on planning and training.

- Assisted in update of the County Emergency Operations Plan
- Updated department tornado response plan
- Hosted a Lawrence Public Works Tornado Table Top Exercise with department supervisors and representatives from Douglas County Public Works
- Participated on the team completing the five-year update to the Douglas County Multijurisdictional All-Hazard Mitigation Plan
- Completed NIMS training for department staff

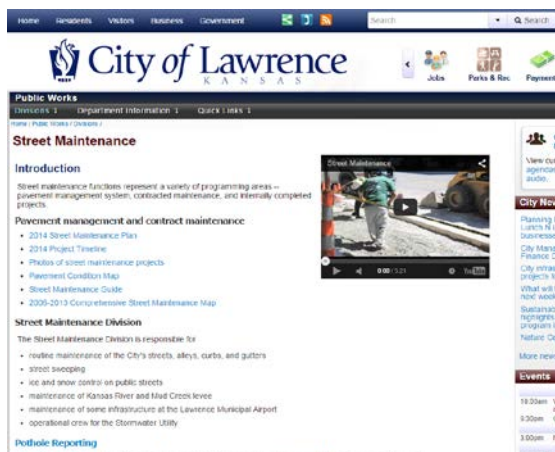


Table top exercise



Storm debris public drop off site, July 2014 storm

**Website administration:** The Public Works Department website was updated in conjunction with a new content management system. A complete revamp of the [www.lawrencerecycles.org](http://www.lawrencerecycles.org) page provides detailed resources for residential and business customers.



# BUILDING and STRUCTURES

The Buildings and Structures Division is responsible for maintenance for municipal buildings except where such services are provided contractually. This division is responsible for three multi-level parking structures and operations 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	Court Services
Lawrence Arts Center	Riverfront Mall office annex	Computer Training Room annex
Airport Terminal	Airport Hangar A, B, and C	Maintenance Hangar
Airport (G.U.T.S)	Community Hanger	Runway 3-33
Aiport Taxiways	Douglas County Senior Center	Runway 1-19
Street Maintenance facility	Solid Waste facility	Solid Waste Annex, North
Fire / Med Station 1	Fire / Med Station 2	Fire / Med Station 3
Fire / Med Station 4	Fire / Med Station 5	Fire / Med Training
Fire / Med Investigations	Public Safety - Stonebarn Terr	Parking Control offices
Central Maintenance Garage	ITC building	Solid Waste, Kresge Road
New Hampshire Parking Structure	Downtown Lighting	Building demolition
Riverfront Parking Structure	Traffic Engineering	HHW buildings
Vermont Street Parking Garage	Transit office	1920 Moodie Road

**Building maintenance:** Much of the work completed by the Building Maintenance Division staff is through work order requests and response to nuisance situations. The division has seven full time positions – five skilled maintenance workers (electrician, HVAC technician, multi-trade maintenance person for all buildings, one assigned to health facility, one assigned to airport, one assigned to parking structures) and a custodian for City Hall. Many services provided by this division are provided by contractors. The Building and Facilities Manager is responsible for allocating staff between competing demands and selecting contractors, administering contracts, and monitoring the work. The division manages elevator service and custodial contracts for many of the facilities. In addition to maintenance work, the division completes snow removal for three parking structures, around numerous buildings, and the runways / taxiways at the Lawrence Municipal Airport. They also respond to issues with the Pinckney and Broken Arrow pedestrian tunnels. Work order statistics are shown in the table below.

Highlights of the work effort for Buildings and Structures in 2014 include:

- Painting parking stripe at train depot lot and parking lots
- Remodeled 4<sup>th</sup> floor offices to accommodate 5 people
- Installed carpet for the Public Works office clerks
- Secured the Barland house for future use

- Replace high pressure sodium fixtures in the North Lawrence tunnels with LEDS
- Continue to update the light fixtures in City Hall, Municipal Airport Terminal, Fire Station #4, outside fixtures at Parking Lot 16, ITC, City Hall, Street Division, Fire Station #4 and New Hampshire Parking Garage
- Added 6 new shoreline connections at 3 Fire Stations to allow primary and back-up locations for ambulances. Air conditioner was added in the patient bays that need constant power while parked to keep the bay comfortable
- Responded to 96 request for locates from One Call
- Installed new carpet, cleaned and disinfected fire/Med one after sewage backup
- Demolished and remodeled area at Maintenance Garage for the new Parts server  
Removed tool room, enclosed the new equipment, added air conditioner, lighting, ceiling and service doors
- Some projects for the Community Health Building include:
  - Repaired the asphalt parking lot and deteriorated concrete
  - Renovations in Bert Nash to rooms 133, 126A/126B, 122 and 114
  - Continue to implement security improvements as recommended public safety

**Work order system:** Repair and maintenance requests are submitted through a work order system accessed through the intranet. There are four types of work orders (scheduled, emergency, preventive, and demand) and six priority classifications.

Below is a summary of key statistics monitored through the year.

Facility management	2012	2013	2014
<b>Work order system reporting</b>			
<b>Priority / Response Goal</b>			
0: 2 hours	84%	84%	50%
1: 24 hours	86%	78%	83%
2: 2-3 days	84%	81%	84%
3: one week	86%	85%	78%
4: one month	94%	92%	91%
5: on list	92%	93%	67%
<b>Total work Orders</b>			
0: 2 hours	19	19	6
1: 24 hours	257	246	222
2: 2-3 days	1,134	1,011	1,181
3: one week	244	238	160
4: one month	424	345	339
5: on list	239	239	237
<b>Total work Orders</b>	<b>2317</b>	<b>2098</b>	<b>2145</b>

Includes functions with dedicated staff: Community Health, Airport, Parking Garages

**Lawrence Municipal Airport:** The Lawrence Municipal Airport is operated by a Fixed Base Operator. The official Airport Manager is the Public Works Director. Mowing adjacent to runways is completed by the Street Maintenance Division. All other facility management is the responsibility of the Buildings and Structures Division.

Lawrence Municipal Airport projects:

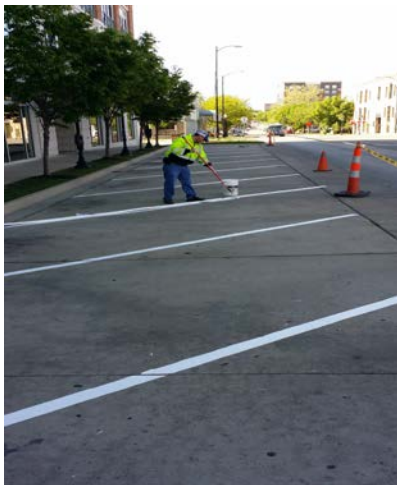
- Overgrown brush removal
- Sealed cracks and expansion joints at community hangar
- Restoration of area following sewer project
- Weed control, mowing

**Parking structures:** The City owns three 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. 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 492 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. The Vermont Street Garage opened in 2014 with 320 spaces. The Vermont Garage has one elevator, two stairwells, and two pay stations. Professional engineering services are used to evaluate the parking structures and recommend repairs as needed.

Highlights of projects completed in the parking structures include:

- Installed a weather shelter for the elevator at the Vermont Garage
- Replaced rusted pipes on fire system lines in New Hampshire Parking Garage
- Install 294 signs for the parking garages
- Re-striping lots in New Hampshire and Riverfront Garages
- Assist with the new elevator enclosure at the New Hampshire garage
- Repaired to the Vermont parking garage bathrooms
- Modified lighting in the Vermont Garage to remedy neighborhood concerns
- Repaired electrical and cleaned up after care fire in Vermont Parking Garage

**Downtown projects:** This division supervises one staff person responsible for maintaining the appearance of the parking structures and other downtown areas, as well as assisting with snow removal and building maintenance projects. Other building maintenance staff members assist on special projects, as needed. Downtown lots were re-striped, as time and weather allowed.



Parking Painting by Hobbs



Car fire at Vermont Garage



**Energy Management:** The division assists the Sustainability Coordinator with review of energy management for significant buildings. When feasible and prudent, lighting is changed to more economical options. Below are statistics for the three major buildings managed by Public Works:

<b>Energy consumption</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>Key buildings</b>			
<b>City Hall</b>	36,000 sq.ft.		
Electricity (kilowatts)	781,200	847,166	884,883
Electricity costs	69,591	82,474	94,506
Electricity usage per sq. ft.	21.7	23.5	24.6
Electricity costs per sq. ft.	1.9	2.3	2.6
Natural gas (therms)	1,709	1,962	1,472
Natural gas costs	1,402	1,698	1,364
Natural gas usage per sq. ft.	0.047	0.054	0.041
Natural gas cost per sq.ft.	0.039	0.047	0.038
<b>Community Health facility</b>	86,474 sq.ft.		
Electricity (kilowatts)	1,049,800	1,018,322	1,010,959
Electricity costs	110,357	110,901	115,760
Electricity usage per sq. ft.	12.14	11.78	11.69
Electricity costs per sq. ft.	1.276	1.282	1.339
Natural gas (therms)	13,989	25,442	20,266
Natural gas costs	9,419	18,207	14,973
Natural gas usage per sq. ft.	0.161	0.294	0.234
Natural gas cost per sq.ft.	0.109	0.211	0.173
<b>Arts Center</b>	40,000 sq.ft.		
Electricity (kilowatts)	776,920	631,024	667,711
Electricity costs	71,240	64,043	74,321
Electricity usage per sq. ft.	19.4	15.76	16.69
Electricity costs per sq. ft.	1.781	1.601	1.858
Natural gas (therms)	26,646	31,165	24,095
Natural gas costs	17,400	22,233	17,756
Natural gas usage per sq. ft.	0.666	0.779	0.602
Natural gas cost per sq.ft.	0.435	0.556	0.444

**Building and Structures Division pictures in 2014:**



Salt dome 1120 Haskell



Water penetration



Secure house



Drainage problem at Fire Station 5



Elevator enclosure  
New Hampshire garage



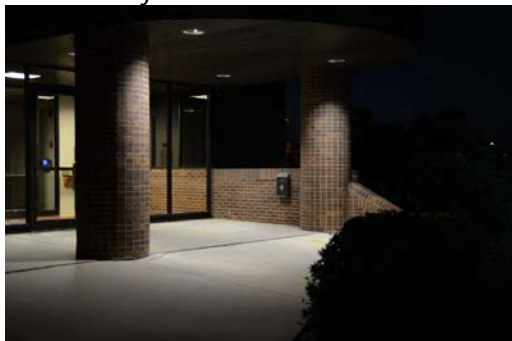
Clean up from Library temporary offices



City Hall 4<sup>th</sup> floor remodel



City Hall lower entry



LED lighting at City Hall entry



Door removed at Health Building

# ENGINEERING

The Engineering Division is responsible for the review and approval of all public improvement plans for streets, sidewalks, rights of way, driveways and storm sewers. The division administers designs and inspects these projects. The 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.

In addition to project management, Engineering includes work groups for Stormwater Engineering, Traffic Engineering, Bridge inspection, Levee inspection / monitoring, Surveying, sidewalks, driveways, right-of-way permits and supports services, including providing mapping and GIS functions for public information. The Engineering Division is responsible for the VenturePark redevelopment project including remediation efforts of ground water and future development as industrial site.

### Major project management

Including Rock Chalk Park, VenturePark, Capital Improvement projects, maintenance projects and new street construction, the Engineering Division oversaw approximately \$41.5M in construction work during 2014. A majority of design work for 2015 construction projects was also completed, estimated construction cost of \$7.2M. Staff has also been involved in the planning and construction of two on-going KDOT projects: South Lawrence Trafficway and K-10/Bob Billings Parkway interchange, construction cost of \$150M.

Below is a summary of major projects managed in 2014:

Major infrastructure projects	Infrastructure cost
Venture Park	\$ 7,697,938
Rock Chalk Park	\$ 11,500,000
23rd and Iowa intersection	\$ 4,200,000
6th and Iowa intersection	\$ 1,933,427
31st, Haskell to O'Connell	\$ 3,914,176
Wakarusa, Oread west to Inverness	\$ 2,100,000
Vermont Brick Street Restoration	\$ 304,400
9th and Kentucky	\$ 137,519
9th Street, Avalon to Arkansas	\$ 278,510
Menards Public Improvements	\$ 838,000
Fox Chase Subdivision	\$ 513,527
Langston Heights	\$ 1,990,273
Redbud Lane	\$ 542,553
Yankee Tank	\$ 936,758

Details of the projects are discussed a more comprehensive report from the Engineering Division which may be found on-line ([Link here](#)).



Venture Park infrastructure



Venture Park infrastructure



Rock Chalk Park infrastructure



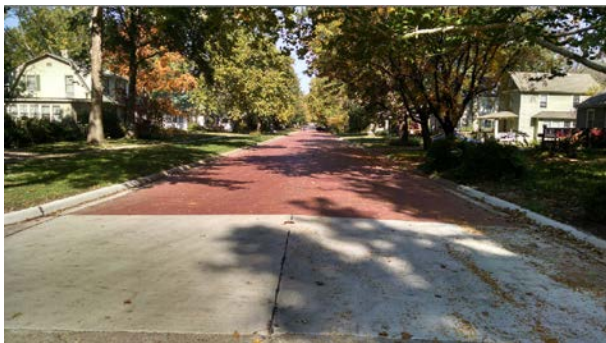
9<sup>th</sup> Street improvements



6<sup>th</sup> and Iowa



Wakarusa Road



Vermont Brick Street



Overlay program

In 2014, a total of 34 project reviews were completed for 21 separate projects.

**Infrastructure and pavement management**

The pavement management program is an on-going effort to evaluate pavements, apply the right preventive maintenance at the right time, and manage the contracts to complete that work.

The Pavement Management System provides the Public Works Department a tool to maintain an inventory of street pavement, respective maintenance and condition history, and the ability to identify needs and impacts associated with preservation strategies and asset management. Streets are rated once every four years. By applying this tool and with the continued support of the program, the City has seen the implementation of a wide range of maintenance techniques from preventive maintenance measures to major rehabilitation and reconstruction impacting overall Pavement Condition Index (PCI) and pavement deterioration.

<b>Ratings and conditions</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Average PCI rating (overall, end of year)	75.46	75.54	75.58
% of pavement w/ PCI rating of acceptable or above			
Arterial	70.50%	66.51%	68.06%
Collector	76.43%	75.84%	79.22%
Residential	85.92%	86.48%	86.75%
% of curb and gutter rated as			
Good	63.99%	64.72%	64.18%
Fair	27.18%	27.21%	27.06%
Poor	8.84%	8.07%	8.77%

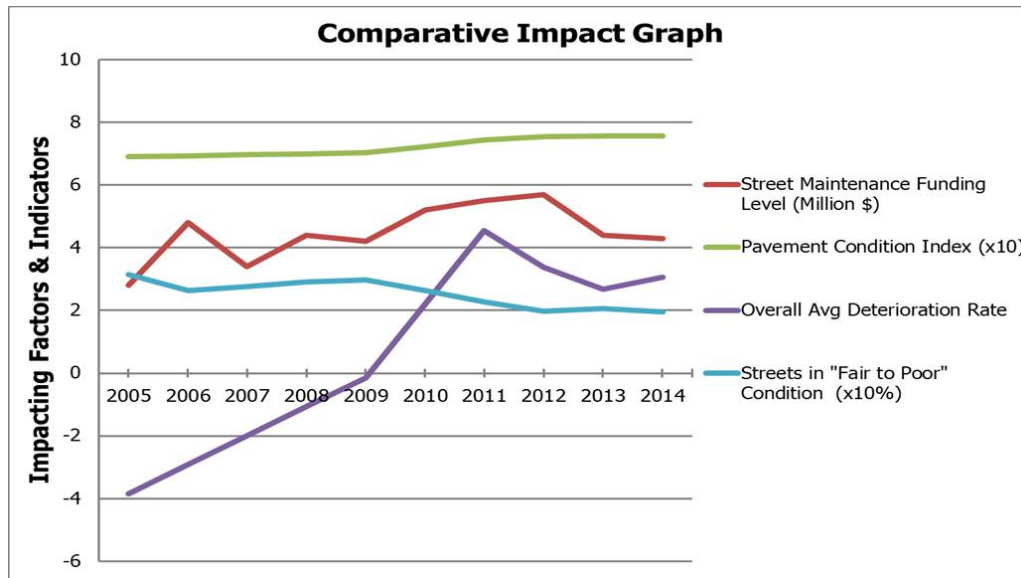
A street segment is considered to be in "unacceptable" condition when the PCI drops below 65 for arterials, 60 for collectors, and 55 for residential streets. (Unacceptable streets generally are not good candidates for preventive maintenance work. They are more likely to require rehabilitation and possibly complete reconstruction.) The Pavement Management System showed 19.49% of street segments were rated as unacceptable at the end of 2014, compared to 20.57% and 19.79% in 2013 and 2012, respectively.

Contracts are bid annually for the major components of the street maintenance programs. Typically, there are at least four types of maintenance work contracted:

- Microsurfacing (including patch work)
- Overlay and concrete rehabilitation
- KLINK (partially funded by KDOT for pavement rehab of state highways)
- Pavement marking

<b>Work Type</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Mill & Overlay (lane miles)	22.0	7.5	11.92
Microsurfacing/ Patching (lane miles)	32.6	9.7	29.74
Concrete Pavement Patching (sq yds)	8,986	5,402	3,464
Curb & Gutter (linear feet)	19,545	12,966	15,622
ADA Access Ramps (each)	47	15	20

Below is a comparative impact graph of funding, pavement condition index, and deterioration rates as presented to the City Commission:



### Pedestrian and Bicycle Facility Improvements

The Engineering Division actively contributes to non-motorized methods of transportation by ensuring pedestrian and bicycle facility improvements are included in projects, or are constructed as stand-alone projects.

Pedestrian and Bicycle Improvements	2012	2013	2014
Sidewalk (new) -- linear feet	745	1,436	14,200
Sidewalk (new) -- project cost	\$ 170,195	\$ 37,425	\$ 219,182
Sidewalk (repairs) -- linear feet	812	1,469	8,254
Sidewalk (repairs) -- project cost	\$ 18,781	\$ 25,158	\$ 168,026
Ramps (new)	12	11	25
Ramps (repairs)	46	40	87
Ramp costs (new and repairs)	\$ 54,925	\$ 49,650	\$ 114,345
Bike Lanes -- linear feet	0	21,556	21,301
Bike Lanes -- project cost	\$ -	\$ 142,500	\$ 560,500
Shared Use Path -- linear feet	0	5,740	9,750
Shared Use Path -- project cost	\$ -	\$ 176,200	\$ 650,000

In 2014, a comprehensive sidewalk survey was completed that examined all sidewalks and recorded missing segments and linear feet of sidewalk with damage or defects.

### Right of Way Management / Street Events

Right-of-way (ROW) and street event permits are now issued through the Public Works Department in City Hall. Changes in 2014 created a centralized "one stop shop" for submitting ROW and street event applications. Public Works coordinates an event review team for the

street events and submits applications that need City Commission approval through the agenda process. No parking signage and meter bags are handled in the same location.

ROW management	2014
ROW permits issued	345
Street event permits issued	56
Street events with CC approval	39

### Stormwater maintenance and administration

The stormwater maintenance crew continued to focus on curb inlet replacement, debris removal, channel reconstruction projects. The stormwater maintenance crew statistics and information is reported with the Street and Stormwater Maintenance Division.

Outreach, education, and enforcement: The water festival was held in conjunction with Earth Day. The division is also working to promote Rain Gardens in the community. In addition to outreach and education, the Stormwater Quality Technician is responsible for enforcing and implementing the Stormwater Pollution Prevention ordinance.

Stormwater infrastructure: In an effort to analyze the existing condition of the City's storm sewer infrastructure an inventory and inspection program was launched in 2007. Each curb inlet, area inlet and junction box will ultimately be photographed and inspected. Field work will include verification of structure dimensions, location and material type. Progress on the project is related to staffing and other priorities, so the work effort can be variable. The following tables summarize the progress to date:

	2012	2013	2014
Infrastructure inspection curb inlets, area inlets, junction boxes	148	5	39

Stormwater System Enhancements: The next major stormwater improvement project will be the Maple Street Stormwater Pump Station. The majority of the design process for the Maple Street stormwater pump station was completed in 2014. The U.S. Army Corps of Engineers has given informal approval to the construction plans submitted for review. The private utilities located within the project limits have been relocated. The project will be bid in Spring 2015 with an estimated construction cost of \$4.0M.

Bridge Inspection: As mandated by Federal Law all bridges are to be inspected at least every 24 months. The calendar year 2014 coincided with this mandated inspection cycle. Currently the City of Lawrence has nine bridges listed on the National Bridge Inventory (NBI). The current inspection cycle marked the fourth time that city staff has completed these bridge inspections in house. Of the nine bridges in the city inventory four are considered open span structures with the remainder being classified as reinforced concrete boxes (RCB's). All of the bridges were found to be in overall good condition.



## 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. The group designs, installs, and maintains the Intelligent Transportation System. Field crews provide signal maintenance, fiber optic network oversight, signal timing, street signs, pavement markings, city-owned street-lighting and assist in emergency operations. The Traffic Engineer works with community and neighborhood groups to address specific concerns.

Traffic maintenance operations	2012	2013	2014
Number of Traffic Signals Maintained	83	83	84
Number of Mid-Block Pedestrian Signals Maintained	2	2	2
Number of Pedestrian Hybrid Beacons Maintained	8	9	10
Number of School Beacons Maintained	43	43	43
Number of Traffic Signal Service Calls	596	605	625
Number of Traffic Signal Preventive Maintenance Inspections	24	73	25
Number of Electronic Traffic Counts	91	201	136
Number of Manual Traffic Counts	68	74	47
Number of New Signs Installed	156	255	208
Number of Signs Upgraded	54	59	95
Number of Signs Repaired	1633	1282	1559
Lineal Feet of Pavement Markings Painted	169,642	323,292	209,196
Number of School Crosswalks & Stop Lines Painted	63	11	2
Number of Pedestrian Crosswalks & Stop Lines Painted	10	220	0
Number of Pavement Marking Arrows Painted	0	0	3
Square Feet of Pavement Marking Material Installed	319	133.5	218



23<sup>rd</sup> and Iowa



Long-line painting



Sign installation



ITS Center (Intelligent Transportation System)



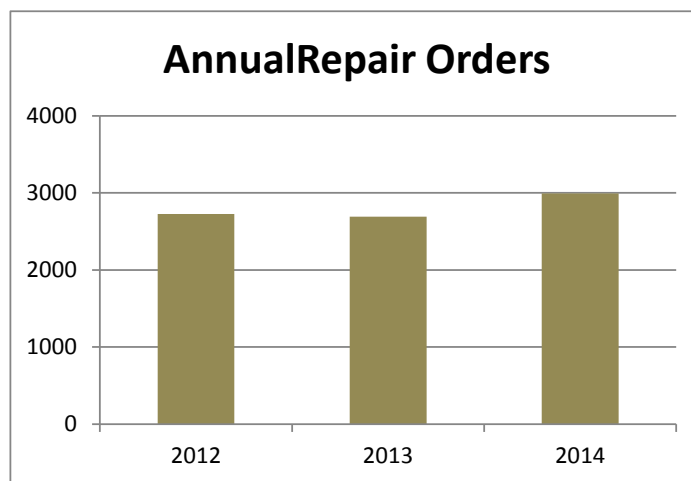
# FLEET SERVICES / Central Maintenance Garage

The Central Maintenance Division provides maintenance and repair services for the city's vehicles and equipment. Central Maintenance also provides fuel management and billing for the city's fuel sites, one at 11<sup>th</sup> and Haskell and the Wakarusa fuel site. Central Maintenance's goal is to provide managed, cost effective, and timely repair of the fleet. The fleet plays a critical role in operations and meeting the needs of our citizens. The City of Lawrence has to rely on a fleet to conduct daily operations associated with providing the services that the public depend on for a high quality of life in our city. Vehicles such as fire apparatus and law enforcement vehicles supply the services in emergency situations that citizens rely on. Public works vehicles help provide safe streets and sanitation services for a clean city. Utility fleets support efforts to supply our fresh water and sanitary sewer functions. Parks vehicles help keep our city's parks neat and clean for our citizens can have a high quality of recreation. The City cannot provide any of these services without a safe operating fleet.

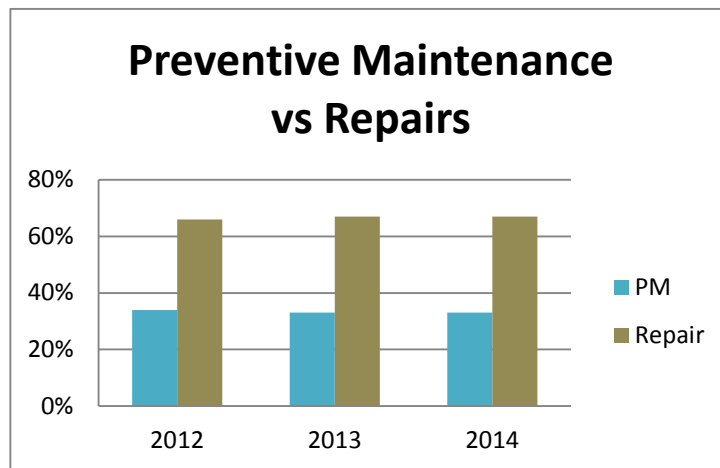
## Repairs and Maintenance

Central Maintenance repair and maintenance productivity is examined from a number of different perspectives – total number of work orders, the ratio of preventive maintenance and repair services and service calls due to breakdowns in the field.

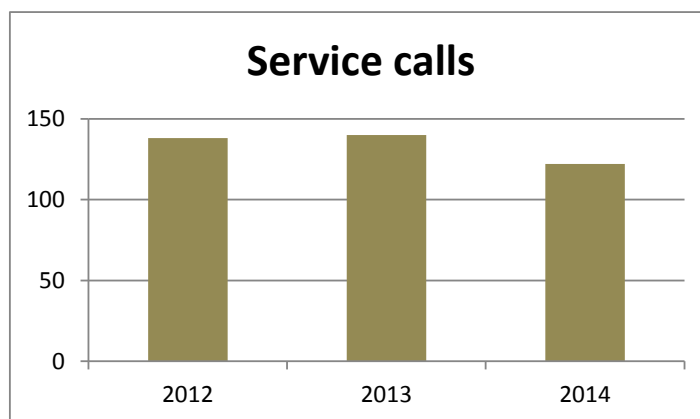
Number of repair orders: There were 2995 maintenance and repair orders in 2014. This is a total of 11% higher than in 2013. The total number of repair orders processed by technicians will vary annually due to size of fleet, age and condition of fleet, and the complexity of work needed in any particular year.



Preventive maintenance and repairs: One goal for fleet services is to focus an increasing level of energy on preventive maintenance versus repairs. The intent is to identify and repair more problems when a unit is in for routine maintenance, thus reducing downtime and unscheduled repairs. Ideally, at least 55 percent of work would be preventive. Achieving the ideal ratio of preventive maintenance to repairs is very difficult with an aging fleet. In the 2014 year PM services were increased from 2013 by 9%. This still only account for 33% of the work performed.



Service calls: Another measure to monitor for evaluating effective maintenance operations is the number of service calls for break-downs in the field. 2014 has shown a reduction in service calls.



## Fuel Operations

The Central Maintenance Garage operates two fueling locations, plus the pilot project compressed natural gas tank. Central Maintenance, tracks and bills internal departments for fuel use. Transit buses do not fuel at the City facilities. Central Maintenance purchase 203,877 gallons of unleaded and 285,801 gallons of diesel for city operations. Sales totaled \$1,636,435.20 for billed departments that purchase fuel through the garage. The city had a 5% increase in total gallons used, but saw a 1% decrease in price paid compared to the 2013 budget year.

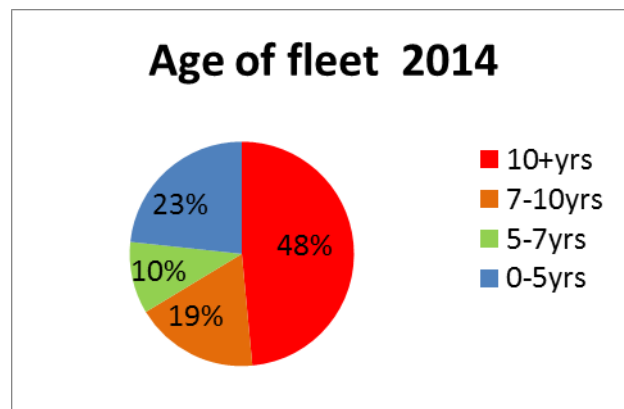
The pilot project compressed natural gas (CNG) fueling station has been challenged by several compressor failures in 2014. The station has been non-operational since October. The City is pursuing remedies with the vendor of the equipment.

## Size and Age of Fleet

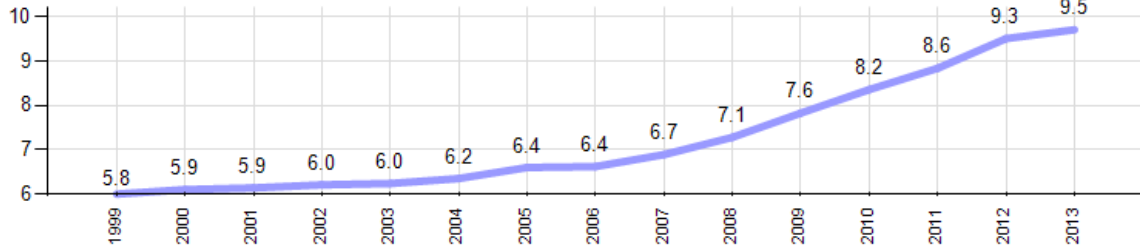
The City of Lawrence fleet is extremely diverse, and aging. There are approximately 750 units in the fleet with an average age exceeding 10 years.

Department	Number of Units	Department	Number of Units
Public Transit	1	Solid Waste	61
Planning	1	Solid Waste Reduction	21
Codes Enforcement	6	Storm Water	31
Building Safety	5	Parks and Rec.	135
Water Collections	8	Recreation	1
Information Systems	2	Recreation East Lawrence	1
Police Administration	30	Recreation Classes	1
Police Patrol	55	Recreation Special Population	1
Animal Control	3	Recreation Special Events	1
Police Traffic	5	Recreation Nature Center	2
Fire and Medical	78	Recreation Aquatic Center	3
Parking Control	4	Golf Course	23
Parking Garages	1	Health facilities	4
School Resource	2	Housing	2
Street Department	77	Water Utility Engineering	4
Engineering	13	Clinton Production	3
Traffic Engineering	11	Kaw Production	17
Airport	4	Wastewater Treatment	24
Property Maintenance	11	Sanitary Sewer	26
Levee Maintenance	8	Laboratory Services	4
Central Garage	14	Distribution Systems	44
Farmland (Venture Park)	2		

The average age of the fleet is 10 years old. Approximately 48% of fleet units are 10 years or older. These numbers include everything from passenger vehicles to equipment that perform specific tasks and trailers to support other city operations.



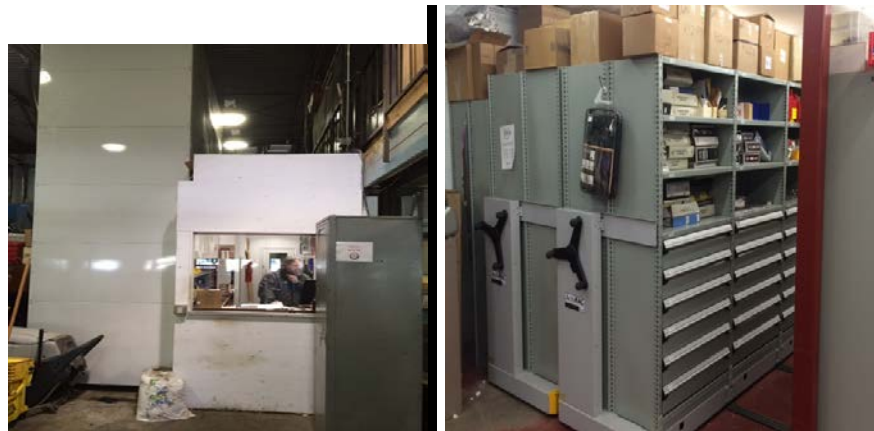
## Equipment Average Age per Year



The continuing increase of the average fleet age is a concerning trend. In general, aging equipment experiences more failures, resulting in increased maintenance costs, increased maintenance incidents, and increased likelihood of break downs in the field. Equipment downtime is expensive for departments in terms of productivity as well as straight repair costs.

### Central Maintenance Projects

Central Maintenance installed a parts carousel and rolling cabinet system in the 2014 year. This system has consolidated the parts operation by decreasing the actual foot print of the operation and increasing the operations efficiency. This operation also allowed the opportunity to enclose the specialty tool area to allow check out and tracking of the specialty tools. Central Maintenance also took the opportunity in 2014 to restructure its staff. With the leaving of administrative staff, the CMG staff felt the replacement of a Parts Assistant would better fill this gap. This person could fill in when the parts person is absent and fill the gap when high demands are put on the parts staff. This transition has gone well and staff is settling into their roles.





Central Maintenance was also involved in the restoration of the Fire Department American LaFrance fire truck. This unit is a 1955 engine that was originally purchase by the Lawrence Fire Department. Now the unit is under restoration for future events.



## Training

Central Maintenance staff continues to take opportunities for continued training. Central Maintenance staff attended ASA Vision conference in 2014 to have training ranging from Network Communications to Computerized Body Electronics. Staff attended HEAT training to increase their skills and knowledge. Classes ranging from Ford Police Interceptor Training to Weldon V-MUX Multiplexing help keep their skills on emergency vehicles. Finally several staff took the opportunity to attend CARQUEST Technical Institute training this year; classes included Module Programing and New Vehicle Technologies.

<b>FLEET STATISTICS</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Miles driven			
Police Department	981,727	1,024,301	1,012,986
Public Works	780,223	815,849	900,493
Fire Medical	346,667	344,251	330,609
Utilities Department	276,704	271,841	283,344
Parks and Recreation	270,643	238,902	226,443
Miscellaneous (admin., BI, plan., etc)	225,669	144,443	145,297
<b>Total miles</b>	<b>2,881,633</b>	<b>2,839,587</b>	<b>2,899,172</b>
Off road equipment usage (hours)	24,597	25,936	26,978
Operations			
Repair orders completed	2,721	2,691	2,995
Preventive maintenance orders completed	923	892	975
Billing			
Total number of hours billed	15,130	15,466	16,221
Total labor (in \$\$)	714,089	729,865	738,850
Total parts (in \$\$)	1,225,067	1,237,582	1,155,052
Commercial (sublet) (in \$\$)	185,918	155,096	208,478
Miscellaneous	20,160	19,896	21,230
Total dollars billed for repairs	2,145,234	2,142,439	2,123,610
Fuel system			
Total fuel sold for year (gallons)	449,717	469,786	489,679
Total diesel fuel sold (in dollars)	929,345	989,849	1,000,893
Total unleaded gasoline sold (in dollars)	677,566	652,823	635,541
Total fuel sales (in dollars)	1,606,912	1,642,672	1,636,435
Total Operational Billing	3,752,146	3,785,111	3,760,045

**Performance measures:** The performance measurement system provides additional tools to evaluating and reporting fleet operations.

<b>performance measures</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Average operational fleet readiness			
fire department	97.8%	98.1%	97.3%
police department	97.9%	97.4%	97.4%
all other heavy duty equipment	96.0%	95.7%	96.2%
all other light duty equipment	98.4%	98.4%	97.5%
Average days to complete work order			
heavy duty preventive maintenance	9.29	9.41	7.54
heavy duty repair	2.29	2.35	2.51
light duty preventive maintenance	3.17	2.85	3.60
light duty repair	1.74	1.92	2.19
Average fuel cost per 1000 miles driven			
heavy equipment / vehicle	861.53	965.68	924.12
light equipment / vehicle	327.43	331.97	303.84
Number of repeat repair orders	14.00	23.00	38.00
Fuel storage system tests completed	262.00	255.00	250.00

# 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 residential, commercial, and industrial customers. Services include collection, disposal, recycling, and technical assistance.

## Solid Waste Services

**Residential**

- Solid waste (trash) collection weekly
- Single-stream recycling collection every other week
- Yard waste collection weekly (March - December)
- Bulky item collection upon request
- Tire collection (5 per year per household)
- Household hazardous waste drop-off by appointment
- Sorted recycling drop-offs (glass, cardboard, etc).
- Brush drop-off area (Saturdays, March - December)
- Compost and woodchips for sale (Saturdays, March - December)

**Commercial / Industrial / Institutional**

- Trash dumpster services (front or rear load)
- Roll-off services
- Qualified business hazardous waste drop-off by appointment
- Cardboard collection for recycling

**Special Events**

- Earth Day Parade and Celebration in the park (April)
- Electronic recycling drop-off events (two per year)
- Holiday Toy and Food Drive (employee-initiated)

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

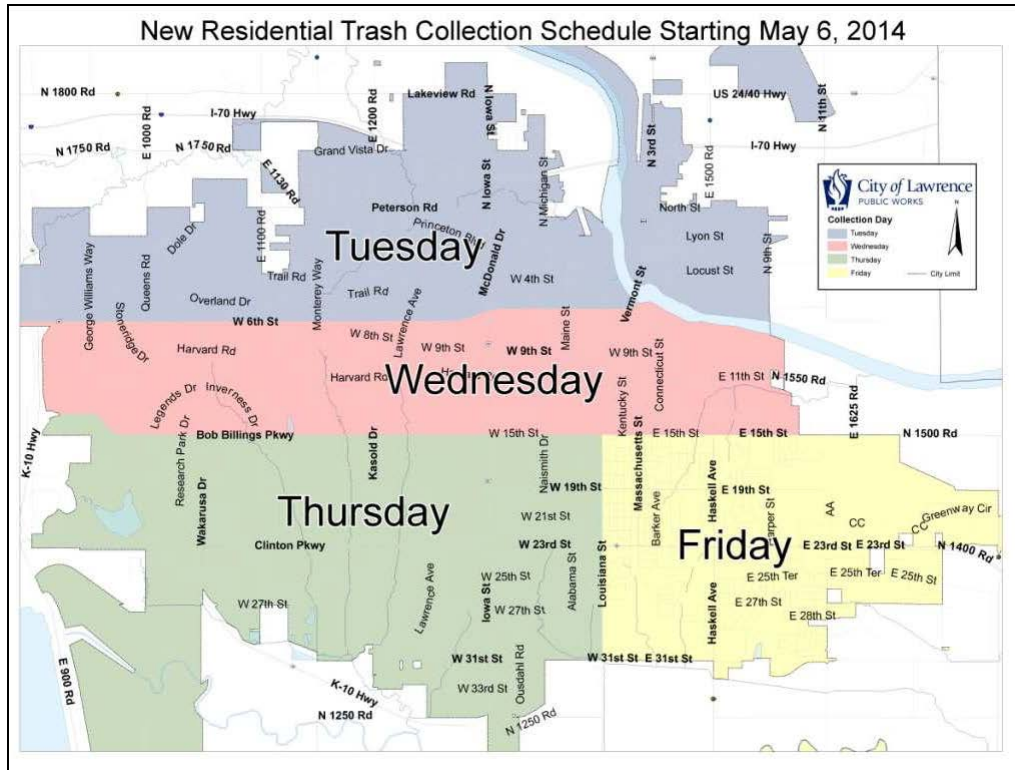
Tons collected	2012	2013	2014
Tons solid waste collected for disposal	59,636	61,051	61,556
Tons single-stream recycling*	n/a	n/a	1,227
Tons (est.) collected for recycling / composting	10,719	12,577	12,960

\*single-stream residential recycling began October 21, 2014

The Solid Waste Division services 30,845 residential accounts (includes both single-family and multi-family residences) and 1,546 commercial accounts.

The Solid Waste Division implemented significant changes to services in 2014. Service changes included:

- Transitioning from a three-day per week residential trash collection schedule (Tuesday through Thursday) to a four-day per week collection schedule (Tuesday through Friday) in May.



- Rolling out city-wide residential single-stream recycling collection in October.



- Expanding hours and services at the Wood Recovery and Compost Facility:
  - Saturday public drop-off opened earlier in the year with expanded hours (March through mid-December, 10:00 a.m. to 4:00 p.m.).
  - Compost and woodchip material was made available for purchase on Saturdays (self-load) during public drop-off hours.



Other 2014 highlights for the Solid Waste Division included:

- Increased automation in equipment / vehicles (purchased an additional four automated side-load "ASL" trucks to bring the total to six ASL trucks in the fleet).



- Acquired property at 2201 Kresge Road for the purpose of re-locating Solid Waste Division operations and the Household Hazardous Waste Facility (note: development of the property will occur in multiple phases over the next few years).



**City of Lawrence**  
**Phase 1 - Lawrence Solid Waste Facility**  
**New Household Hazardous Waste Building**  
2201 KRESGE ROAD  
Lawrence, Kansas

- Awarded \$140,000 in grant funds from the Kansas Department of Health and Environment to assist in paying for the new Household Hazardous Waste Facility.
- Received the Outstanding Solid Waste Management Program Award at the 2014 Kansas Solid Waste Management Conference in Manhattan, Kansas.



## Residential Collection

Two of the biggest changes to the Solid Waste Division operations in 2014 impacted our residential collection:

- Transitioned from a three-day per week residential trash collection schedule to a four-day per week collection schedule in May. Fifty percent (50%) of our residential customers were assigned a different trash day. Trash continued to be collected weekly.
- Implemented city-wide residential single-stream recycling collection in October. Recycling was collected every other week. To help residents remember which week to set out their recycling cart, a notification system was created (Notify!) and well as an online interactive map and collection schedule at [www.LawrenceRecycles.org](http://www.LawrenceRecycles.org).



The number of housing units grew slightly in 2014. Residential growth has a direct impact on our residential services. Thirteen crews pick up residential trash and six crews pick up residential recycling. The trash crews also pick up all rear-load commercial trash dumpsters along their residential routes. These same crews pick up yard waste on Mondays only, March through mid-December.

A look at residential trash cart size at single-family households (percent breakdown by size):



Cart size	Units	% of households
35 gallon	2,206	9.44%
65 gallon	14,168	60.60%
95 gallon	7,007	29.97%

The chart below highlights some of the residential collection activity.

	2012	2013	2014
Bulk items collected	1,474	2,597	2,926
Tires collected	2,081	1,671	1,805

Notes on the services mentioned above: 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 tires 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 or recycled.

Residential crews also performed alley litter collections on Fridays (or as needed) on a rotating basis among neighborhoods with alleys. Downtown alleys were patrolled for litter as well. Several neighborhood cleanups were performed at the request of and in coordination with neighborhood associations.

Waste reduction and recycling efforts: The chart below highlights some of the waste reduction and recycling programs of the Solid Waste Division.

	2012	2013	2014
Single-stream residential recycling	-	-	1,227
Grass, leaves, and brush collected	8,106	9,125	9,686
Avoided disposal (est) costs in \$\$	205,243	238,710	261,909
Christmas trees collected (tons)	18	14	11
Household haz waste participants served	2,648	2,757	2,873
Business haz waste participants served	118	114	103
Product reuse participants	654	594	597
Metal scrap & freon containing items (tons)	33	88	46
Old Corrugated Cardboard OCC (tons)	1,323	1,445	1,530
Average price per ton generated on OCC	98.47	107.85	91.79
Old Newspapers ONP (tons)	308	341	260
Mixed Paper MIX (tons)	357	443	371
Sorted Office Paper SOP (tons)	36	26	39
Glass (tons)	588	1,197	1,075

Yard waste collection and compost program: The community achieved a 99.9% compliance rate with preferred yard waste container set outs (cans, city carts and compostable paper bags). Community-wide collection of yard waste on a single day remains challenging for solid waste crews, but the high compliance with preferred container requirements makes the collection process safer and much more efficient, as well as improving the final quality of the compost. Compost and woodchip sale events continue to be very popular and a valuable way of returning this resource to the community. Compost and woodchip material was also made available for purchase on Saturdays (self-load) during public drop-off hours 10 a.m. to 4 p.m.

	2012	2013	2014
Preferred YW container compliance	99.7%	99.7%	99.9%
Vehicle visits during sale events	1,166	3,137	956
Tons of material distributed	1,531	1,834	671

Household hazardous waste (HHW) and business hazardous waste (BHW) programs: The HHW and BHW programs are important components of solid waste services in reducing the potential toxicity of the materials taken to the landfill. The amount of hazardous waste dropped off at the HHW Facility increased by 6.6% compared to the prior year (SFY). Participation by households (HHW) and businesses (BHW) increased by 0.7% and 5.5%, respectively. The majority of the households participating were from Lawrence but 16% were Douglas County residents living outside the Lawrence city limits.

Fibers recycling program: The fibers recycling program consists of business collection services for cardboard and sorted office paper plus drop-off boxes for cardboard, newspaper, and mixed paper for residential use. There was a consistent amount of fibers dropped off in even after the start of city-wide residential curbside recycling.



	2012	2013	2014
Fiber programs recovery (tons)	2,024	2,255	2,200
Fiber program revenue (\$\$)	\$181,272	\$200,427	\$175,043

CITY OPERATED RECYCLING DROP-OFF SITES		newspaper	cardboard	mixed paper	glass
Brandon Woods	1501 Inverness			X	
Checkers Food Store	2300 Louisiana	X	X	X	
Dillon's Food Store	6th & Wakarusa	X	X	X	X
Dillon's Food Store	23rd & Alabama			X	
Douglas County Bank	9th & Kentucky	X			
Hillcrest Shopping Center	9th & Centennial	X	X	X	X
Hobby Lobby	1801 W. 23rd	X	X	X	
Hy-Vee Food Store	3504 Clinton Parkway	X	X	X	X
Hy-Vee Food Store	6th & Monterey Way	X	X	X	
North Lawrence	740 N. 2nd	X	X		
On The Rocks	1818 Massachusetts				X
Westlake Ace Hardware	6th & Kasold	X			

Special events and public outreach / education: Public outreach and education remained a strong component of the Solid Waste Division activities.

- Electronic Recycling Events (spring / fall): The division continued to host two collection events per year to collect electronic waste.
- Compost and Woodchips Sale Event (spring): There was one sale event for compost and woodchips in 2014 in which the division loaded trucks and trailers. The material was available for sale every Saturday between March and mid-December (self-load only).
- Earth Day Celebration (April): Staff organized the annual Earth Day Celebration in the Park, in conjunction with a parade and the April Showers to Water Towers outreach program.
- America Recycles Day (November): ARD is another opportunity for educating the public and raising awareness for recycling.

### Commercial Collection

Growth in the commercial sector continued. The Division reviews site plans for accessibility, location of refuse containers, and type of service required and made comments to the Planning Department as necessary.

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.

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

	2012	2013	2014
Roll-off service calls	5,791	6,049	6,399
Permanent accounts	60%	67%	64%
Revenue from roll-off service	\$978,667	\$1,024,139	\$975,252
Tons of solid waste from roll-offs	16,944	20,179	19,720
Compactor units in service	31	31	31

The Division continued the rate audit of downtown businesses. 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.



Earth Day Parade and Celebration



Electronic Waste Collection Event



Tour of Household Hazardous Waste Facility



Dropping off glass recycling bin

# STREET MAINTENANCE DIVISION

The Street Maintenance Division is responsible for the routine maintenance of the City's streets, alleys, curbs, and gutters. The division is responsible for 835 lane miles with 36 employees. The work force is divided into 4 crews -- asphalt, concrete, levee/ sweeping/ alleys and storm water.

The Street Maintenance Division provides a wide range of services for our citizens, for transportation maintenance and for community events. Normal activities include pot hole patching, curb and gutter repair, City owned sidewalks and wheel chair ramps, crack sealing, street sweeping, snow removal and storm drain and pipe cleaning.

The division maintains the Kansas River Levee system. The levee covers 2600 acres and is about 13 miles long. The Levee protects North Lawrence and a large portion of farm land in Douglas County from the Kansas River and Mud Creek. The river levels are monitored by our staff year round and are the first to respond to rising water levels. There are also 8 miles of the levee top for recreation, a popular place for walking, jogging and bike riding, managed by this workgroup.

The stormwater crew takes care of 250 miles of open drainage and three storm water pump stations in North Lawrence. These pumps keep the underpass on North 2nd street dry and remove up to 22,000 gallons of water per minute from the low lying areas every time it rains.

The Street Division provides traffic control devices for special events. Some of the highlights in 2014 were the St. Patrick's Day Lawrence Parade, the Lawrence Color Run and the annual Lawrence Old Fashion Horse Parade. The division built the shot put area for a downtown event. These special events, along with numerous runs, walks, sidewalk sales, require putting up signs and placing barricades, extra sweeping and general assistance to other Departments.

Street Division provides traffic control and assistance for emergencies such as major fires or traffic accidents. All members of the division have received training for natural disasters such as tornadoes or floods and are experts at debris management and removal. The division assists other departments with heavy construction projects that involve earth moving, concrete and asphalt work.

The winter season of 2014 was a bit unusual with extreme cold weather and frequent weekend storms. Snow and Ice events numbered 13 recorded events with 29.65 inches of snowfall and several other small ice or patrol events. But that only tells part of the story... January of 2014 continued a pattern of small but pesky storms followed by extreme cold weather that taxed employees, equipment and resources two late season major snow storms were the high point to what turned out to be a hectic winter season stretching into early April.

## **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 later in this section. Other notable projects included:

## STREET MAINTENANCE PROJECTS 2014

represents a *sample* of projects completed by maintenance crews

### Base failure repairs

- Patching Kasold, 8th to Bob Billings Pkwy
- Street restoration for all in-house Utility projects

### Special projects

- Alley grading
- Demolition / cleanup at Venture Park
- Removal of BNSF train tracks on 6th St. and Vermont St
- Removal of BNSF train tracks @ 11th St.
- Retaining wall construction with Bob Billings project
- CNG fueling station and pads at 11th and Haskell

### Concrete projects

- Repaired curbs for micro-surface contract
- Concrete pathcing and pavement rehab
- Curb repair in advance of mill and overlay
- Sidewalk gap project on W 23rd St

### Drainage work

- Rip raping culvert @ Burroughs Creek Trail
- 78" CMP on Powerhouse Road
- 960' of overflow pipe on Ridge Court
- Repaired stormwater pond near County Shop
- Waterway and culvert at 27th and Crossgate

### Levee management

- Mowed entire levee 4 times
- USACE periodic inspection

### Sweeping programs

- All City and major streets swept at least twice in year
- Downtown area swept eight times per year
- University area swept three times per year



Work on Kansas River Levee



Work on Kansas River Levee

<b>STREET MAINTENANCE STATISTICS</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Paving projects			
Tons of asphalt placed	448	402	3,546
Cubic yards of concrete placed	1,375	889	1,027
Patching pot holes / pavement			
Reports to Pot Hole Hot Line / On-line form	320	274	537
Tons of patch material placed	829	601	315
Number of potholes/locations patched	6,041	6,127	9,874
Concrete work			
Concrete pavement (square feet)			27,670
Lineal feet of curb replaced	6,525	3,934	4,909
Street Sweeping			
Lane miles completed	8,234	7,886	7,251
Tons of debris collected	7,249	7,228	7,316
Crack sealing			
Pounds of material used (by street division)	92,390	109,930	67,643
Mowing activities			
Right of way and drainage area acres	2,838	2,992	3,912
Levee acres mowed	2,600	2,600	2,600
Snow removal			
Number of storms (winter season,e.g., 13-14)	4	8	13
Inches of snowfall for season		29.6	29.7
Tons of material spread			
Salt tons	1,467	3,462	4,428
Sand tons	866	1,886	4,054
Liquid Brine gallons	15,227	53,185	68,536

Stormwater Infrastructure Maintenance: Routine maintenance of the existing stormwater network includes the cleaning of ditches, storm sewer pipes, inlet throats and catch basins. Stormwater operations crews are managed under the Street Maintenance Division. The following summarizes the work completed in 2014:

	<b>2012</b>	<b>2013</b>	<b>2014</b>
Ditches cleaned (feet)	3,907	2,617	2,526
Stormsewer pipe installed (feet)	1,592	1,485	2,027
Catch basins cleaned	901	1,205	1,872
Catch basins rebuilt	20	15	23
Stormsewer pipe rodded / cleaned (feet)	1,081	620	1,142
Curb inlets (throat) checked	102	0	24
Catch basins vacuumed	46	5	15





31<sup>st</sup> Street



Snow plows in tandem



900 Block Alley, Tennessee - Kentucky



900 Block Alley, Tennessee - Kentucky



Crescent Road Sinkhole



2800 Block Ridge Court



Downtown



Sweeping

# What's happening in 2015

To conclude the 2014 Public Works Annual Report, here are some highlights for what is upcoming in 2015:

Major projects planned for 2015 include:

- Maple Street Stormwater Pump Station
- Bob Billings Parkway and George Williams Way intersection improvements
- Bob Billings Parkway left turn lane improvements (Corpus Christi Benefit District)
- Bob Billings Parkway, Foxfire Drive to Wakarusa
- KLINK in 2015 will be Iowa Street, from 6<sup>th</sup> to Harvard, and from Irving Hill to 21<sup>st</sup>
- Haskell Rail Trail
- CDBG Sidewalk Gap

Solid Waste Division:

- Solid Waste Facility at Kresge Road, Phase 1, will be constructed
- Business and commercial recycling options will be presented for consideration

Street Maintenance Division:

- USACE rip rap on Kansas River Levee
- New stormwater improvements at 11<sup>th</sup> and Mississippi
- Pavement rehabilitation at Moodie Road, 20 – 21 Terrace
- Crack sealing, pavement preservation
- Downtown brick sidewalk repair / replacement
- Curb and sidewalk rehab in conjunction with 2015 street maintenance program
- 27<sup>th</sup> Street and K-10 dedicated westbound right turn lane

Traffic Division

- Intelligent Transportation System (ITS) Phase 1
- Intelligent Transportation System (ITS) Phase 2
- Pavement marking
- Crosswalks