What We Do

Johnson County Wastewater (JCW) is responsible for the safe collection, transportation and treatment of wastewater generated by residential, industrial and commercial customers. Two basic tenets are the foundation of JCW’s work:

**Mission Statement**

Protecting our environment  ■  Serving our customers  ■  Enhancing our communities

**Vision Statement**

Johnson County Wastewater seeks to be locally respected and nationally recognized for leadership and excellence in:

- Water quality
- Customer service and stakeholder satisfaction
- Responsible and sustainable use of resources
  - Natural  ■  Human  ■  Financial

We pride ourselves on maintaining a positive work environment that:

- Provides training and education.
- Empowers employee productivity, innovation, and transfer of knowledge.
- Emphasizes safe work habits and practices.

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**What We Believe**

**Core Values**

**Creativity**

We encourage employee innovation, seek continuous improvement, and embrace learning opportunities.

**Integrity**

We demonstrate trustworthiness by being truthful, openly sharing information, and taking responsibility for our actions.

**Service**

We embrace public service as a personal commitment of our talents to the benefit of the people we serve.

**Respect**

We value our diverse backgrounds and cultures, each other’s contributions, and ideas from various perspectives.

**Humor**

We will laugh with one another, use humor in a sensitive manner, and recognize and celebrate our accomplishments.

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**Key Contacts – Johnson County Wastewater**

**EMERGENCIES, 24 hours**

913-715-8600

**Main line**

913-715-8500

**FAX**

913-715-8501

**Customer Service and billing**

913-715-8590

**Proposed District Information**

913-715-8541

**Sewer Permit Information**

913-715-8520

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**Employees:**

Benjamin Adams  |  Julie Aldrich  |  Richard Alexander  |  Mark Anderson  |  Michelle Anderson  |  Joshua Ashley  |  Tressa Bailey  |  John Balog  |  Joseph Barnes  |  Patrick Beane  |  David Becker  |  John Beery  |  Richard Beery  |  Clifton Bencke  |  Tonya Bennett
It is my pleasure to present to you the 2015 Johnson County Wastewater (JCW) Annual Report. Each year we prepare a summary of our business and highlights of our accomplishments for your review online.

**Tomahawk Creek Wastewater Treatment Facility**

Focus this last year was on a study regarding necessary upgrades and expansion of the Tomahawk Creek Wastewater Treatment Facility, located at 10701 Lee Boulevard in Leawood. This plant was originally built in 1955. More than 60 years later, times and the community it serves have changed and so have the needs of the facility itself.

New water quality regulations require upgrades to the existing Tomahawk Creek facility to improve water quality in Indian Creek and downstream waters. The facility currently treats seven million gallons per day, 40 percent of the wastewater collected from parts of Leawood, Olathe, Overland Park and Prairie Village. The remaining 60 percent is currently sent to Kansas City, Mo. for treatment. In 2015, $17 million was spent on payments to Kansas City, Mo. The cost to continue sending flow and paying Kansas City for treatment will substantially increase because of Kansas City’s increasing costs.

Johnson County Wastewater has studied how to accomplish two goals in the most cost-effective manner:

- Meet new water quality regulations requiring upgrades to the existing treatment facility.
- Confirm a 2013 study recommendation to expand the Tomahawk Creek Wastewater Treatment Facility and discontinue sending flow to Kansas City, Mo.

The study recommended investing to expand the Tomahawk Creek Facility to treat all flow as the most cost-effective, long-term solution, and it also provides the most positive environmental impact.

In spring 2016, staff will request approval from the Johnson County Board of County Commissioners to proceed with the design phase of the facility.

**December 2015 Customer Satisfaction Survey**

The department conducts a semi-annual customer satisfaction survey. Results from the December 2015 survey indicate several favorable and significant increases in areas of satisfaction:

**Of those who had an opinion**

- Ninety-three percent were “very satisfied” or “satisfied” with the overall quality of wastewater service.
- Seventy-one percent were “very satisfied” or “satisfied” with how well JCW kept them informed about issues related to their wastewater service. This was a significant increase of nine percent from 62 percent in the summer of 2015.
- Eighty-three percent were “very satisfied” or “satisfied” with the overall quality of customer service provided by JCW.

**Significant increase in customer service satisfaction.**

- The specific customer service category that respondents were most satisfied with was the accuracy of their bill (85 percent). This category showed the most significant increase (7 percent) from 78 percent during the summer of 2015.
- There were two other significant increases in satisfaction with customer service; how easy it is to resolve billing problems, up 6 percent from 66 percent in the summer of 2015 and the hours that customer service is available, up 5 percent from 79 percent in the summer of 2015.

**Mill Creek Regional Effluent Tunnel**

In May 2015, the Mill Creek Regional Effluent Tunnel was put into service. All treated wastewater now flows by gravity from the plant through the 10,000 foot tunnel to the discharge location on the Kansas River. Previously, effluent had been pumped to the discharge location. The tunnel was sized for maximum flows from the watershed.

**World Toilet Day**

JCW joined the celebration of World Toilet Day 2015 on November 19. This is an annual international observance dedicated to the toilet, meant to draw attention to the worldwide sanitation picture and its impact on health, safety and the environment.

Since its inception, World Toilet Day has played a vital role in challenging governments, businesses and other groups to make changes. It has also worked toward breaking various taboos surrounding the topic, in order to facilitate discussion and lead to the creation of better, safer solutions.

According to the World Health Organization and UNICEF, improved sanitation could save the lives of one million children per year who would otherwise succumb to diarrheal diseases.

Since 1990, 1.8 billion people have gained access to adequate sanitation. Yet, despite these facts, progress on improving access to sanitation has actually slowed in the past five years. The Millennium Development Goal target to reduce by half the proportion of the population without access to sanitation is at serious risk. In fact, in 2015 more people lacked access to sanitation facilities, rather than fewer.

The short YouTube video, World Toilet Day – Where You Go Matters, offers further insight into this problem.

This is just a sample of the business we conducted in 2015. Please accept my invitation to read this report and learn more about Johnson County Wastewater’s ongoing efforts to protect, serve and enhance the exceptional quality of life in our communities.

John P. O’Neil—JCW’s general manager
JCW By the Numbers

JCW has more than 5,600 aboveground assets, including six major treatment plants and 31 pump stations. Underground assets include more than 2,250 miles of sewer line, approximately 58,000 manholes, approximately 24 miles of active low-pressure sewers and 42 miles of active force mains. The estimated replacement value of the entire system is more than $2 billion. The miles of sewer line would span the distance between Johnson County’s Administration Building in Olathe to New York City and back.

In 2015, JCW’s active account base of more than 139,100 was composed of:
- 5,994 commercial accounts (4.27 percent)
- 113 industrial accounts (0.08 percent)
- 17,228 multi-family accounts (12.38 percent)
- 115,843 single family residential accounts (83.28 percent)

JCW issued 1,348 connection permits in 2015 (257 commercial and 1,091 residential), comparable to 2006-2007.

In 2015, the department ended the year with connection fee revenue of $7,281,262.28. This figure is an increase of nearly $1.4 million since 2014.

The wastewater system covers a service area of more than 172 square miles and 16 cities and unincorporated areas of Johnson County.

JCW’s Rate in 2015

JCW once again had the lowest rate in the Kansas City metropolitan area in 2015. The combined revenue requirement increase for 2015 was 6.25 percent, which resulted in an increase of $1.86 for the median residential customer. The median Average Winter Water Usage was 8,564 gallons in 2015, which is 143 gallons per day.

JCW: The best bargain in the metro

The number used to calculate the bill comparisons covers three years, over which the AWWU would differ.

<table>
<thead>
<tr>
<th>Monthly Charge using 152 gallons</th>
<th>AWWU 2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johnson County Wastewater</td>
<td>$27.05</td>
<td>$30.83</td>
<td>$32.69</td>
</tr>
<tr>
<td>City of Olathe</td>
<td>$31.01</td>
<td>$34.64</td>
<td>$36.27</td>
</tr>
<tr>
<td>City of Independence</td>
<td>$31.67</td>
<td>$33.98</td>
<td>$36.68</td>
</tr>
<tr>
<td>NACWA National Average</td>
<td>$35.98</td>
<td>$37.33</td>
<td>$39.00</td>
</tr>
<tr>
<td>City of Lee’s Summit</td>
<td>$29.21</td>
<td>$31.77</td>
<td>$33.69</td>
</tr>
<tr>
<td>KCK</td>
<td>$31.86</td>
<td>$31.77</td>
<td>$33.69</td>
</tr>
<tr>
<td>Col</td>
<td>$31.86</td>
<td>$31.77</td>
<td>$33.69</td>
</tr>
<tr>
<td>Nat</td>
<td>$35.98</td>
<td>$37.33</td>
<td>$39.00</td>
</tr>
<tr>
<td>KCNO</td>
<td>$31.86</td>
<td>$31.77</td>
<td>$33.69</td>
</tr>
</tbody>
</table>

- **Treatment accomplishments:**
  - 18,511.58 million gallons of flow treated in 2015
  - 100 percent compliance on solids disposal
  - JCW’s permitted treatment capacity in 2015 was approximately 65 million gallons per day.
  - In 2015, Johnson County Wastewater had a 99.89 percent compliance rate with NPDES discharge limits. Of a possible 2,724 violations, the department recorded three violations for the year.

- **Collection accomplishments:**
  - 426.62 miles of sewer line cleaned
  - Zero wet weather backups/bypasses and 20 dry weather backups/bypasses
  - The department’s annual goal is less than 53/year of each.
The People of Johnson County Wastewater

The Johnson County Board of County Commissioners

Johnson County Wastewater (JCW) operates as a department in Johnson County government, reporting directly to the deputy county manager under the direction of the county manager and the Board of County Commissioners. The county commissioners hold their regular business sessions, open to the public, every Thursday at 9:30 a.m., except on observable holidays, in the Board Hearing Room, 111 South Cherry, Third Floor, Olathe, Kansas.

Front row: Jason Osterhaus, commissioner, Fourth District; Ed Eilert, chairman of the Board; and Michael Ashcraft, commissioner, Fifth District.

Back row: James Allen, commissioner, Second District; Ronald Shaffer, commissioner, First District; Steven Klika, commissioner, Third District; and John Toplikar, commissioner, Sixth District.

Johnson County Wastewater Leadership

The Johnson County Wastewater Leadership Team members are: (front row left to right) Beth Brandel, director of Business Operations and Planning; Lori Sand, director of Communications; and Susan Pekarek, chief engineer.

(back row left to right) Kurt Winters, director of Operations and Maintenance; John O’Neil, general manager; Tony Holt, director of Water Quality Lab; and Lisa Davis, director of Customer Relations.
New public sewer projects open more than 1,400 acres to developers

In 2015, Johnson County Wastewater (JCW) completed three new public sewer projects:

- Blue River No. 15, Contract 3 opens 68 acres for development at roughly 171st Street and Switzer Road.
- Blue River No. 21 is located between Mission Road and State Line Road from 175th Street to 195th Street. It covers about 1,300 acres, with about 900 acres owned by developers.
- Blue River 25 Contract 2 is comprised of approximately 80 acres in south Overland Park, north of the Arboretum. The development plan includes 129 residential single family lots and a Blue Valley School District elementary school. The project was completed ahead of schedule and within budget.

These new areas will be developed primarily as single family homes. Development and home building is good for the county because it not only provides construction jobs and generates sales tax revenue from building materials and furnishings, it increases the county’s real estate tax base as well.

Mill Creek Regional Effluent Tunnel

In May 2015, the Mill Creek Regional Effluent Tunnel was put into service. All treated wastewater now flows by gravity from the plant through the 10,000 foot tunnel to the discharge location on the Kansas River. Previously, effluent had been pumped to the discharge location. The tunnel was sized for ultimate flows from the watershed.

New sewer projects initiated in 2015

Lateral Sewer District No.1 of Kill Creek No. 2, low pressure sewer improvements

(Gardner Lake Low Pressure Sewers Project)

The purpose of this project is to provide public sanitary sewer service to homes with failing septic systems which can negatively impact the watershed. The homes in the benefit district are built on small lots, have aging septic systems or holding tanks, and are located in a watershed containing impaired water bodies.

This low pressure sewer project consists of the installation of approximately 5.5 miles of sewer main, 5.25 miles of discharge line and 235 home site connections with grinder pumps. The contractor was given the notice to proceed in September 2015. The project is anticipated to be substantially complete in March 2017.

This project is approved for 40 percent principal forgiveness from a federal grant and a low interest loan from the Kansas Water Pollution Control Revolving Fund which will provide substantial savings to each homeowner as well as to JCW.

Asset Management Roadmap

JCW’s Asset Management Roadmap program provides a framework for the development of many strategies, processes and tools which focus on minimizing the lifecycle cost of sewer system ownership, optimizing the use of available resources and meeting levels of service at an acceptable risk and cost. In 2015, JCW staff identified, defined and prioritized a list of initiatives that will provide the necessary tools to further develop the program.

Pam Henry – environmental compliance manager
and Trent Menssen – technical support analyst
Customer Relations

Customer Service

- Customer Relations staff worked closely with Business Operations and Planning staff and the Department of Technology and Innovation to complete the business requirements analysis, Request For Proposal and the selection of a vendor for a new permitting application. The new application will combine five databases for sewer main projects, commercial building reviews, permit issuance, the fats, oils, and grease program and street/storm projects. The new system will allow for electronic plan review and permit issuance, automation of many manual data gathering and reporting functions, reduction of duplicate data and improved overall efficiencies.

- Paperless billing is now available to customers. This was the enhancement most requested by Johnson County Wastewater customers and has had the added benefit of helping to reduce printing and mailing costs.

- Staff placed more than $300,000 of delinquent user charges on the Johnson County tax rolls for collection. This measure was taken only after all other bad debt collection efforts had failed.

Operations & Maintenance

NACWA awards

Each year, the National Association of Clean Water Agencies (NACWA) recognizes public wastewater facilities for outstanding compliance with National Pollutant Discharge Elimination System (NPDES) permit limits. This recognition program consists of Peak Performance Awards in three categories – Platinum, Gold and Silver.

Johnson County Wastewater was recognized in July 2015 at the NACWA national conference held in Portland, Ore., for its outstanding compliance records in the 2014 calendar year and was presented with six Peak Performance awards.

- Platinum Award (at least five years of 100 percent NPDES compliance)
  - The Blue River Main facility for nine years of permit compliance
  - The Mill Creek Regional facility for eight years of permit compliance

- Gold Award (100 percent compliance with the NPDES permit)
  - New Century Air Center facility
  - Tomahawk Creek facility
  - Douglas L. Smith Middle Basin facility

- Silver Award (no more than five NPDES permit violations)
  - Myron K. Nelson facility

In 2014, Johnson County Wastewater had a 99.7 percent compliance rate with regard to NPDES discharge limits. Of a possible 2,237 violations, the department recorded seven violations for the year.

Gravity Sewer Asset Management program

This project is a continuous effort with the Existing Infrastructure engineering group and Operations & Maintenance (O&M) staff implementing improvement initiatives related to how the collection system is managed. While the program is ongoing, during 2015 the focus was on using data gathered from the crews to help drive several decisions:

- Refined JCW’s strategy of when to clean the 2,200 miles of sewer and updated the process which generates work orders. This work will assist the division in meeting its levels of service and risk management goals as well as managing the crew workloads.

- Incorporated findings from the Pilot Infiltration & Inflow (I&I) Study into the automated process to determine which lines to close circuit TV (CCTV) and which lines to repair. This is a great accomplishment that allows O&M to reduce I&I through asset management efforts in the system.

- Continued efforts to make data easily available to staff who are making project decisions. For example, the hydraulic model information which shows if lines are overloaded during wet weather is now available to all staff through Automated Information Mapping System (AIMS).

- Developed Key Performance Indicators and automated reporting to track line cleaning and CCTV output and compliance goals and in-house repair output and backlog as well as contracted repairs and backlog.

- Shown with the NACWA certificates following the Aug. 27, 2015, meeting of the Johnson County Board of County Commissioners are: (front to back – left to right): Rick Beery, Phil Webster, John Manis, Robert Morris, Andy Super, Keith Hall, Tim Engbroten, Kenny Kellison, Kurt Winters, Deanna Ketner, and Mark Anderson.
Tomahawk Creek Wastewater Treatment Facility improvements - project definition

During 2015, the project team accomplished:

- Development and refinement of treatment process alternatives and costs for an expanded facility.
- Water quality analyses which demonstrate the environmental benefits of building an expanded plant to treat all tributary flows. The analysis showed water quality benefits for Indian Creek as well as the downstream waters of the Missouri and Mississippi rivers, all the way to the Gulf of Mexico.
- Development of a draft NPDES permit working with the Kansas Department of Health and Environment and the Environmental Protection Agency Region VII.
- Public outreach efforts with the Leawood Public Works and Development staff.

Savings

- The co-generation facility located at the Douglas L. Smith Wastewater Treatment Facility produced 37 percent of its power needs. The department has seen an increase in gas production due to processing more fats, oils, and grease and other food processing wastes.

Water Quality Laboratory

Johnson County Wastewater projects – 2015

- In February and March, the lab performed the granulated activated sludge pilot study for the Tomahawk Creek facility expansion project and then set up the Blue River Main influent characterization. The influent characterization required testing for 16 different parameters, counting volatile fatty acids as one. The Blue River Main influent characterization required four composite samplers – two for discrete sampling that resulted in 24 sub-samples on the days required. The Blue River study was completed in July.
- The Mill Creek Regional Tunnel presented a unique sampling challenge when the lagoon discharge could not be sampled. The lab staff resolved the issue to installed sample tubing over 100 feet to a viable location.
- Conducted a Tomahawk Creek facility polymer study and assisted with the sludge hauling by repairing the solids unit and running duplicate total solids.
- Assisted with a disinfection study at the Nelson Complex.
- In August, the characterization of the Tomahawk influent was planned. The two influent sites, representing the Tomahawk Creek watershed and the Lower Indian Creek watershed were set in addition to a site on the final clarifier effluent. The first influent sites were rejected due to high solids and two other locations were established upstream. Work was conducted November 2015 through February 2016.
- Other 2015 process control studies were:
  - UV optimization @ Blue River Main
  - UV optimization @ Mill Creek Regional
  - Long-term optimization of Mill Creek Regional aeration rates

Partnerships

- The lab analyzed stream samples collected by the U.S. Geological Survey for Public Works. The 205 samples were analyzed for bacteria, turbidity, eight nutrients and solids. These samples came in throughout the year.
- The Johnson County Board of County Commissioners finalized the lab’s price schedule in August. The lab does work for private citizens, non-profits, American Indian reservations and other municipalities.
- Performed all NPDES sampling and analysis for 24 pretreatment program industries and 16 interconnection monitoring facilities (IMF) under the inter-local agreement with Kansas City. The IMF number six site was sampled and analyzed 117 times during the year to help control the charges.
- The lab does routine work for 16 local municipalities, Leavenworth and Miami counties.
- JCW’s Water Quality Lab is the main source for drinking water analysis in Kansas and eastern Missouri. In 2015, samples for approximately 50 different clients were processed.
Area Served: Johnson County Wastewater

Blue River Main
2523 W. 151st Street
Overland Park, KS 66224
913-715-8745

Blue River No. 4 (Lagoon)
188th Street & Lackman Road
Spring Hill, KS 66083
913-715-8750

New Century Air Center
50 Leawood Drive
New Century, KS 66031
913-715-8766

Mill Creek Regional
20001 W. 47th Street
Shawnee, KS 66218
913-715-8593

Myron K. Nelson Complex
4800 Nall Avenue
Mission, KS 66202
913-715-8790

Tomahawk Creek
10701 Lee Boulevard
Leawood, KS 66211
913-715-8760

Douglas L. Smith Middle Basin
10001 College Boulevard
Overland Park, KS 66210
913-715-8700

JRW Service Area
City Boundaries
Sewage, which is almost all water, contains material such as chemicals and bacteria. Only a tenth of 1 percent is solid matter.

Through gravity and pumps, sewage is moved through a system of pipes from houses and businesses to a treatment plant.

**Hot Spots**

**Sources of sewage in your home**

Wastewater originates from many sources in your home. Here are some of the more common points:

**Note**: Storm sewers or drains do not go to treatment plants. Water flows directly into waterways.
2015 Total Operating Fund

Total Operating Fund

$51,855,064

- Laboratory: $999,455, 1.93%
- Customer Relations: $4,418,385, 8.52%
- Business Operations and Planning: $5,418,620, 10.45%
- Operations and Maintenance: $41,018,804, 79.10%

Operations and Maintenance

$41,018,804

- Blue River Plant: $2,281,451, 5.56%
- Administration: $772,250, 1.88%
- Airport: $1,317,379, 2.72%
- Collections: $7,418,431, 18.09%
- Middle Basin: $4,735,961, 11.55%
- Mill Creek: $2,347,633, 5.72%
- Nelson Complex: $4,143,173, 10.10%
- Tomahawk Creek: $16,935,290, 41.29%
- Administration: $772,250, 1.88%

2015 Total Capital Expenses

Total Capital Expenses

$57,011,212

- GO Bond Debt Service: $26,199,642, 45.94%
- Project Expenses: $26,793,075, 46.99%
- Miscellaneous Expenses: $566,946, 1.00%
- Admin Building Water Quality Lab: $712,931, 1.25%
- State Loan Debt Service: $2,748,688, 4.82%
- Permit/Regulatory: $1,110,014, 4.11%
- Expansion-Plants: $7,631,888, 28.46%
- Expansion-Sewers: $5,445,348, 20.40%
- Other: $2,028,092, 7.55%
- Renewal/Replacement: $10,577,733, 39.48%
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<thead>
<tr>
<th>Levels of Service 2014-2015</th>
<th>2014</th>
<th>2015</th>
<th>Increase (Decrease)</th>
<th>% of Increase (Decrease)</th>
<th>Target</th>
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<tr>
<td><strong>Employee turnover</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Separation of Service</td>
<td>12.0%</td>
<td>10.0%</td>
<td>(2%)</td>
<td>—</td>
<td>&lt;10%</td>
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<tr>
<td><strong>Line Maintenance and Rehabilitation</strong></td>
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<td>Miles of Line Cleaned</td>
<td>398.4</td>
<td>426.62</td>
<td>28.22</td>
<td>7.9%</td>
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<td>Miles of Line Televised</td>
<td>103.58</td>
<td>133.39</td>
<td>29.81</td>
<td>28.8%</td>
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<td><strong>Permit Compliance Rate</strong></td>
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<td></td>
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<tr>
<td>Percentage of Parameters</td>
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<td>99.87%</td>
<td>0.17%</td>
<td>0.1%</td>
<td>98%</td>
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<td>In Compliance</td>
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<td><strong>Sewer Backups</strong></td>
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<td>Dry Weather</td>
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<td>(2)</td>
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<td><strong>Response Time on Plan Reviews</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>First Submittals 14 Days</td>
<td>35%</td>
<td>41.6%</td>
<td>6.6%</td>
<td>—</td>
<td>80%</td>
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<tr>
<td>Re-submittals 7 Days</td>
<td>68%</td>
<td>37.7%</td>
<td>(30.3%)</td>
<td>—</td>
<td>80%</td>
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<tr>
<td><strong>Odor Complaints</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>8</td>
<td>5</td>
<td>(3)</td>
<td>(37.5%)</td>
<td>&lt;10</td>
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<tr>
<td>Collections</td>
<td></td>
<td></td>
<td></td>
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* In mid-2015, the Board of County Commissioners authorized the hiring of additional staff and contract employees to address the difficulty the division was having in meeting plan review goals. In the second half of 2015, the response times were significantly improved.

*Andrew Wendel – planning engineer and Shannon Mathes – senior engineering technician*
<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Watershed</th>
<th>Plant Capacity (MGD)</th>
<th>Plant Capacity (P.E. @ 100GPCD)</th>
<th>Average Daily Dry @ 0.21 Weather Flow (lbs/capita/day)</th>
<th>Average Daily Flow (lbs/capita/day)</th>
<th>P.E. Used (%)</th>
<th>Process Type</th>
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<tbody>
<tr>
<td>1. Turkey Creek MSD #1</td>
<td>Turkey Creek</td>
<td>8.00</td>
<td>80,000</td>
<td>5.07</td>
<td>7.98</td>
<td>67,773</td>
<td>85% TF</td>
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<td>2. Mission Main MSD #1</td>
<td>Brush Creek</td>
<td>7.00</td>
<td>70,000</td>
<td>4.11</td>
<td>7.14</td>
<td>41,848</td>
<td>60% TF</td>
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<td>3. Tomahawk Creek MSD #1</td>
<td>Indian Creek</td>
<td>4.00</td>
<td>40,000</td>
<td>6.08</td>
<td>6.82</td>
<td>40,455</td>
<td>101% TF</td>
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<td>4. Indian Creek Middle Basin</td>
<td>Indian Creek</td>
<td>14.50</td>
<td>145,000</td>
<td>8.75</td>
<td>11.45</td>
<td>211,699 (g)</td>
<td>146% BNR</td>
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<td>5. Blue River MSD #1</td>
<td>Blue River</td>
<td>10.50</td>
<td>105,000</td>
<td>4.21</td>
<td>5.66</td>
<td>32,883</td>
<td>31% BNR</td>
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<td>6. Blue River SSD #4</td>
<td>Blue River</td>
<td>0.02</td>
<td>200</td>
<td>NA (c)</td>
<td>NA (c)</td>
<td>NA (c)</td>
<td>NA (c) LAGOON</td>
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<tr>
<td>7. Little Bull Creek SSD #2</td>
<td>Bull Creek</td>
<td>1.10</td>
<td>63,000</td>
<td>0.5</td>
<td>0.78</td>
<td>58,287</td>
<td>93% ACT</td>
</tr>
<tr>
<td>8. Mill Creek Regional</td>
<td>Mill Creek</td>
<td>18.75</td>
<td>187,500</td>
<td>6.65</td>
<td>9.81</td>
<td>86,720</td>
<td>46% ACT&amp;AL</td>
</tr>
<tr>
<td>9. KCMO Tomahawk diversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.60</td>
<td>9.92 (f)</td>
</tr>
<tr>
<td>10. KCMO all Sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.55</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>63.87</strong></td>
<td><strong>690,700</strong></td>
<td><strong>40.97</strong></td>
<td><strong>62.19</strong></td>
<td><strong>539,665</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Legend**
- **TF** = Trickling Filter
- **ACT** = Activated Sludge
- **LAGOON** = Waste Stabilization Lagoon
- **AL** = Aerated Lagoon
- **BNR** = Biological Nutrient Removal
- **NA** = Not Applicable

**Notes**
(a) Dry Weather Flows were estimated using the lowest monthly average flow for each facility.
(b) Flows into this facility are controlled between 4 and 7 MGD to allow for seasonal nitrification.
   Flows above these limits were diverted to Kansas City, Missouri (KCMO) for treatment.
(c) Influent BOD samples and flow measurement are not collected at the waste stabilization lagoon facility.
(d) Little Bull Creek SSD #2 capacity and P.E. are based on maximum 5 day average BOD.
(e) Pounds/Capita/Day
(f) Not included in flow total
(g) Sample includes recycle water from process.
## Summary of Treatment Costs

<table>
<thead>
<tr>
<th>Plant</th>
<th>Direct Cost (1)</th>
<th>Indirect Cost (2)</th>
<th>Total Cost (3)</th>
<th>Flow, MG (Total Annual)</th>
<th>BOD5, lbs</th>
<th>$/MG</th>
<th>$/lb BOD5</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRM</td>
<td>$1,594,077</td>
<td>$83,406</td>
<td>$1,677,483</td>
<td>2,066</td>
<td>2,520,508</td>
<td>$812</td>
<td>$0.67</td>
</tr>
<tr>
<td>ICMB</td>
<td>$4,735,961</td>
<td>$247,796</td>
<td>$4,983,757</td>
<td>4,179</td>
<td>16,226,714</td>
<td>$1,193</td>
<td>$0.31</td>
</tr>
<tr>
<td>MCR</td>
<td>$2,347,633</td>
<td>$122,833</td>
<td>$2,470,466</td>
<td>3,581</td>
<td>6,647,077</td>
<td>$690</td>
<td>$0.37</td>
</tr>
<tr>
<td>NC</td>
<td>$3,967,864</td>
<td>$207,608</td>
<td>$4,175,472</td>
<td>5,512</td>
<td>8,402,453</td>
<td>$758</td>
<td>$0.50</td>
</tr>
<tr>
<td>NCAC (4)</td>
<td>$1,117,379</td>
<td>$58,464</td>
<td>$1,175,843</td>
<td>285</td>
<td>1,617,286</td>
<td>$4,130</td>
<td>$0.73</td>
</tr>
<tr>
<td>THM</td>
<td>$883,742</td>
<td>$46,239</td>
<td>$929,981</td>
<td>2,489</td>
<td>3,100,887</td>
<td>$374</td>
<td>$0.30</td>
</tr>
<tr>
<td>KCMO (5)</td>
<td>$16,914,230</td>
<td>$884,991</td>
<td>$17,799,221</td>
<td>4,579</td>
<td>9,700,938</td>
<td>$3,887</td>
<td>$1.83</td>
</tr>
<tr>
<td>Totals</td>
<td>$31,560,886</td>
<td>$1,651,337</td>
<td>$33,212,223</td>
<td>22,690</td>
<td>48,215,862</td>
<td>$1,464</td>
<td>$0.69</td>
</tr>
<tr>
<td>With Collections</td>
<td>$38,979,317</td>
<td>$2,039,486</td>
<td>$41,018,803</td>
<td>22,690</td>
<td>48,215,862</td>
<td>$1,808</td>
<td>$0.85</td>
</tr>
<tr>
<td>Without KCMO</td>
<td>$22,065,087</td>
<td>$1,154,495</td>
<td>$23,219,582</td>
<td>18,111</td>
<td>38,514,924</td>
<td>$1,282</td>
<td>$0.60</td>
</tr>
</tbody>
</table>

### Legend
- **MG** = Million Gallons
- **BOD5** = 5 day biochemical oxygen demand

### Notes
1. Plant operation and maintenance cost.
2. Pro-rated O&M Administration and EI cost.
3. Does not include New Development Engineering or Wastewater Central Administration costs.
5. Includes O&M and capital portion of charge. Change from previous years.

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*Wes Carroll – treatment crew member*
History of Key Activity Indicators 2011-2015

Odor Complaints

National Pollutant Discharge Elimination System Discharge Violations

99.89% Compliance in 2015

User Charge Delinquency Rate History

Johnson County Wastewater’s Annual Delinquency Rate measures calendar year invoices billed versus collections for that same period. The Annual Delinquency Rate allows for budget year comparisons and year-to-year trend analysis.

Increases in the past two years can be attributed, in part, to the addition of Capital Charges to the User Charge bills which doubled the customers’ bills. An even greater impact was made on those customers who use large amounts of water due to the unified rate model introduced in Jan. 2014 where the variable Volume Charge is based on the volume of water used.

Due to collection efforts in 2015, the delinquency rate dropped to 3.53 percent in early 2016.
Permits, Plans and
District Creations Summary

Preventive Line
Maintenance Summary