

**City of Kearney
Utilities Department
2018-2019
October - September
Annual Report**



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Mark Bowman, Water Production Supervisor
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General Information

The City of Kearney Utilities Department provides water, sanitary sewer, and refuse collection services to the citizens of Kearney. Residents receive monthly bills for these services. The Utilities Department also manages the Kearney Area Solid Waste Agency Landfill. The Utilities Department operates as an enterprise fund. The rates charged provide all the revenue necessary to operate the Utilities Department. No Tax Money Assists These Funds.

For more information contact any of the following City offices:

Utility Billing	233-3240
Landfill Billing	233-3617
Sanitation Supervisor	233-3206
Water Distribution Supervisor	233-3242
Water Quality/Utilities Coordinator	233-3258
Water Production Supervisor	233-3241
Sanitary Sewer Collection	233-3242
Director of Utilities	233-3259
Assistant Director of Utilities	233-3238
GIS Coordinator	233-3250
Emergency after hours	237-2104

GIS Division

Infrastructure

Layer	2018-19 Number of Feature	2017-18 Number of Feature	2016-17 Number of Feature	2015-16 Number of Feature
Fire hydrant	1,834	1,767	1,736	1,708
Water valve	4,258 *	4,510	4,282	3,717
Water pipe	6,847 *	6,923	6,735	6,110
Storm sewer manhole	866	844	805	760
Storm sewer inlet	4,727	4,654	4,585	4,389
Storm sewer pipe	5,836	5,731	5,610	5,328
Storm sewer ends & outfall	508	494	476	393
Sanitary sewer manhole	3,440	3,395	3,332	3,231
Sanitary sewer pipe	3,820	3,776	3,713	3,574
Street Centerline	2,543	2,524	2,487	2,463
Address	20,316	19,803	19,671	19,602

*layers were restructured and "private" valves & pipes were moved to a new layer created for private infrastructure.

Land Base

	2018-19	2017-18	2016-17	2015-16	Total Features
Annexations	4	9	4	4	337
Subdivision	216	23	21	15	869
Legal lot	171	131	98	64	15,973
Zoning	18	24	20	15	1,229
Vacation	13	27	22	13	1,383
Minor subdivision	16	22	14	0	1,157

Area of City

End of Year	Square Feet	Acres	Square Miles
2019	413,974,701	9,480.72	15.0
2018	412,104,600	9,460.62	14.78
2017	400,860,596	9,202.49	14.38
2016	398,800,762	9,155.21	14.31
2015	396,386,458	9,099.78	14.22
2014	392,986,010	9,021.72	14.10
2013	383,123,209	8,795.30	13.74
2012	371,899,568	8,537.64	13.34
2011	370,312,435	8,501.20	13.28
2010	369,141,084	8,474.31	13.24
2009	362,752,535	8,327.65	13.01
2008	352,643,966	8,095.59	12.65
2007	350,184,402	8,039.13	12.56

Residential Lots Available

	Oct. 2019	Oct. 2018	Oct. 2017	Oct. 2016
Platted inside City limits with City water/sanitary sewer	414	479	488	437
Platted inside City limits with no City water/sanitary sewer	166	95	140	209
Platted outside City limits with no City water/sanitary sewer	181	146	157	157

Kearney Area Solid Waste Agency Landfill

Waste Received by Type

	2018-19 Annual Total	2018-19 Monthly Average	2017-18 Annual Total	2017-18 Monthly Average
Construction demolition (tons)	22,727.89	1,894	18,172.12	1,5514.30
Compacted waste (tons)	31,635.54	2,636.30	30,435.57	2,536.30
Total waste (tons)	60,497.93	5,041.49	54,661.92	4,555.20
Total number of vehicles	47,853	3,987.80	44,129	3,677.40

Sanitation Division

	2018-19 Annual Total	2018-19 Monthly Average	2017-18 Annual Total	2016-17 Annual Total
Refuse containers placed for new homes	91	8	120	132
Recycling containers delivered	401	34	539	
Refuse collected (tons) **	20,375	1,697.90	19,910.38	19,660.50

** Roll-off box tonnage not included in total

Processed Recyclables

	2018-19 Annual Total	2018-19 Monthly Average	2017-18 Annual Total	2016-17 Annual Total
Office paper (ton)	33.5	2.8	31.9	35.5
Newspaper (ton)	731.2	60.9	830.8	952
Aluminum (ton)	22.9	1.9	18.5	17.7
Tin (ton)	59.3	4.9	63.4	57.5
Glass (ton)	185.6	15.5	184	187
Plastic (ton)	226.4	18.9	254.8	247.6
Cardboard (ton)	2,503.6	208.6	2,550.50	2,430.20
Total recycled (tons)	3,762.5	313.5	3,933.90	3,924.50
Motor oil (gallons)	10,036	836	9,317	10,906
Recycling revenue	\$105,646	\$8,803	\$211,353.27	\$349,018.61
Landfill avoidance savings	\$103,468	\$8,622	\$108,182.25	\$107,923.75
Total value of recyclables	\$209,114	\$17,426	\$319,535.52	\$456,942.36

Water Quality/Utilities Coordinator

	2018-19 Annual Total	2017-18 Annual Total	2016-17 Annual Total	2015-16 Annual Total
Lawn sprinkler system inspection	127	160	158	149
Backflow inspection	140	170	174	159
Notification to test backflow device	390	356	395	365
Backflow test reports filed	574	526	519	529
“Diggers Hot Line” locate	4,782	5,241	5,459	6,016

Sewer Collection Division

	2018-19 Annual Total	2017-18 Annual Total	2016-17 Annual Total	2015-16 Annual Total
Sanitary sewer main cleaned (feet)	151,437	201,334	273,770	266,042
Sanitary sewer call responded	74	92	83	94
Sanitary sewer main unblocked	17	17	15	18
Sanitary sewer main unblocked	23.00%	18.00%	18.00%	19.00%
Sanitary sewer service line blocked, resident responsibility	57	75	68	76
Sanitary sewer televised (feet)	2,500	3,000	3,000	2,500
Sanitary sewer main in system (mile)	186.9	182.18	182.18	175.8

Water Distribution Division

	2018-19 Annual Total	2017-18 Annual Total	2016-17 Annual Total	2015-16 Annual Total
1" water service installed	17	16	28	54
2", 4", 6" & 8" water service installed	9	13	12	7
Water service lines repaired	80	74	69	53
Lead water service replaced	3	6	7	8
Fire hydrant replaced	2	5	0	3
Water main valve replaced	3	3	2	3
Line stop installed	3	2	1	3
Water main break repaired	14	5	4	3
Fire hydrant flushed & flow tested	2,031	1,577	3,419	2,637
Fire hydrant adjusted to grade	10	12	17	14
Water main valve exercised	2,812	1,825	2,643	3,256
Fire hydrant repaired (struck by vehicles)	9	3	9	5
Fire hydrant painted	298	278	213	390
Water main in system (mile)	227.2	228.1	225.81	212.6
Fire hydrant in system	1,832	1,775	1,740	1,708
Water main valve in system	4,967	4,779	4,645	4,535

Water Production Division

	2018-19 Annual Total	2017-18 Annual Total	2016-17 Annual Total	2015-16 Annual Total	2014-15 Annual Total
Total water pumped (M gal)	1,943.03	2,073.923	2,254.662	2,264.730	2,216.142
Average daily water demand (gallon)	5,323,375.34	5,681,980.82	6,177,156.16	6,204,739	5,974,984
Total water pumped Platte River Well Field (M gal)	1,352.61	1,448.647	1,575.183	1,659.407	1,693.539
Total water pumped Northwest Well Field (M gallon)	564.949	626.713	679.769	608.714	486.911
High day total pumped (M gal): 07-17-19	12.402	13.101	15.562	15.389	13.895
High day total pumped Platte River Well Field (M gal): 7-17-19	8.607	9.889	10.458	11.989	10.649
High day total pumped Northwest Well Field (M gal): 7-3-19	3.864	3.524	5.104	4.335	3.655
Low day total pumped (M gal): 12-18-18	2.75	2.592	1.974	2.582	2.896
Low day total pumped Platte River Well Field (M gal): 4-8-19	1.676	2.029	1.257	1.745	2.019
Low day total pumped Northwest Well Field (M gal): 10-20-18	0.531	0.792	0.716	0.510	0.430
Total fluoride (lbs)	42,635.46	45,498.50	49,464.73	49,713.60	47,845.99
Total chlorine 10% solution (lbs)	324,102.04	345,932.30	376,186.73	378,654.69	363,821.07
Total meter in system	11,214	11,103	10,939	10,780	10,657
Biological sample taken	650	852	875	893	844
Fluoride sample taken	13	13	12	12	12
Chlorine residual sample taken	2,086	2,235	2,275	2,278	2,300
Nitrate sample taken	10	3	2	2	2
pH sample taken	333	365	365	366	365
Water temperature sample taken	389	603	710	730	688
Conductivity sample taken	88	288	407	421	404
Atrazine sample taken	0	0	0	0	0
TDS sample taken	666	730	728	730	778
SOC sample taken	16	28	4	32	3
VOC sample taken	36	52	39	68	39
THM sample taken	27	8	0	0	8
Radiochemistry sample taken	30	9	4	3	4
Arsenic sample taken	2	1	1	2	1
River aerobic spore sample taken	0	0	0	0	0



Daily Water Consumption October 2018 – March 2019 (M gal)

Date	October	November	December	January	February	March
1	6.913	3.730	3.403	3.483	3.732	3.660
2	6.166	3.732	3.823	3.187	3.135	3.562
3	6.579	3.611	3.606	3.600	3.321	3.824
4	6.201	3.690	3.505	3.114	3.670	3.810
5	6.152	3.696	3.606	3.450	3.719	3.584
6	5.349	3.616	3.389	3.141	3.275	3.791
7	5.103	3.679	3.485	3.109	3.584	3.551
8	4.951	3.759	3.495	3.650	3.849	3.568
9	4.689	3.678	3.455	3.427	3.423	3.950
10	4.366	3.371	3.456	3.378	3.728	3.628
11	3.844	3.940	3.527	3.238	3.877	3.993
12	3.797	3.328	3.339	3.627	3.394	3.610
13	3.660	3.937	3.728	3.190	3.878	3.961
14	3.533	3.267	3.038	3.707	2.942	3.574
15	3.654	3.879	3.222	3.177	3.824	4.002
16	3.769	3.522	3.551	3.707	3.731	3.668
17	3.799	3.206	3.349	3.143	3.566	4.019
18	3.755	3.682	2.748	3.592	3.858	3.806
19	3.918	3.246	3.621	3.282	3.672	4.053
20	3.839	3.900	3.077	3.735	3.508	3.678
21	3.846	3.552	3.525	3.426	3.754	4.088
22	3.950	3.005	3.104	3.288	3.468	3.725
23	3.927	3.058	3.330	3.718	3.707	3.924
24	4.053	3.364	3.005	3.142	3.433	3.765
25	4.084	3.175	2.801	3.801	3.922	3.883
26	4.071	3.816	3.287	3.230	3.540	3.408
27	3.928	3.131	3.032	3.659	3.611	3.698
28	3.918	3.815	3.647	3.402	3.764	3.540
29	4.194	3.189	3.122	3.383		3.926
30	4.131	3.718	3.264	3.364		3.630
31	3.716		3.156	3.511		3.850
Total	137.855	106.292	103.696	105.861	100.885	116.729

High daily consumption of the month =
 Low daily consumption of the month =

Daily Water Consumption April 2019 – September 2019 (M gal)

Date	April	May	June	July	August	September
1	3.548	5.044	5.529	11.455	9.677	5.781
2	3.874	5.257	5.576	10.311	9.333	7.104
3	3.571	5.564	6.306	10.914	9.390	7.754
4	3.824	5.262	5.613	10.243	9.937	8.589
5	3.856	5.322	5.955	9.097	11.151	8.691
6	3.637	5.831	6.580	7.017	10.359	9.494
7	3.854	4.729	7.069	6.933	9.713	8.139
8	3.007	4.604	6.837	8.248	9.516	7.355
9	3.239	4.650	5.322	6.029	10.253	7.873
10	3.770	4.692	6.469	5.559	9.793	6.703
11	3.477	4.431	5.685	5.879	8.262	7.624
12	3.287	4.278	6.520	7.148	8.800	6.949
13	3.980	4.915	6.903	7.362	7.734	7.230
14	3.623	5.705	7.169	7.015	9.279	7.012
15	3.888	6.578	5.869	8.964	7.126	7.329
16	4.121	7.087	6.281	8.807	7.269	9.019
17	4.193	6.877	6.771	12.402	6.865	8.334
18	4.348	5.986	5.454	11.209	7.002	9.952
19	4.294	5.843	5.583	11.770	8.667	9.173
20	4.761	6.056	5.980	10.525	8.672	9.446
21	4.804	4.845	5.651	8.246	9.325	8.791
22	4.976	4.834	4.190	8.439	8.923	8.523
23	5.219	4.779	4.850	7.739	8.218	10.034
24	6.029	4.940	5.639	9.264	6.735	9.216
25	5.942	5.027	6.626	8.683	5.893	10.035
26	5.907	4.697	7.659	10.327	5.685	8.846
27	5.110	4.774	8.568	9.621	6.115	8.917
28	4.607	4.904	10.633	9.145	6.492	7.938
29	5.025	5.068	10.315	10.543	6.683	7.276
30	4.808	4.619	10.426	10.096	6.686	8.351
31		5.255		10.804	5.827	
Total	128.579	162.453	198.028	279.794	255.380	247.478

High daily consumption of the month = 
 Low daily consumption of the month = 

Microbiological Analysis of Total Coliform Analysis

	Number of Samples	Positive Coliform Samples
October 2018	40	0
November 2018	40	0
December 2018	40	0
January 2019	40	0
February 2019	40	0
March 2019	40	0
April 2019	40	0
May 2019	40	0
June 2019	40	0
July 2019	40	0
August 2019	40	0
September 2019	40	0
Total 2019	480	0

Raw Water Quality

	Analysis Average
pH	8.1
Total dissolved solids	623 (TDS)
Electrical conductivity	1.04 mmho/cm
Cation/Anion	9.2 me/L
Sodium, Na	103 ppm
Calcium, Ca	89 ppm
Magnesium, Mg	19 ppm
Potassium, K	51 ppm
Total hardness, CaCO ₃	302 ppm
Nitrate, N	0.6 ppm
Sulfate, S	36 ppm
Carbonate, CO ₃	0.5 ppm
Bicarbonate, HCO ₃	273 ppm
Chloride, Cl	97 ppm
Total alkalinity, CaCO ₃	226 ppm
Iron, Fe	0.39 ppm
Fluoride, F	0.64 ppm

Volatile Organic Compounds found in Raw Water

Compound	Water Results	MLC or AL
1,1,1,2-Tetrachlorethane	<RL	
1,1,1-Trichloroethane	<RL	200 µg/L
1,1,2,2-Tetrachloroethane	<RL	
1,1,2-Trichloroethane	<RL	5 µg/L
1,1-Dichloroethane	<RL	
1,1-Dichloroethene	<RL	7 µg/L
1,1-Dichloropropene	<RL	
1,2,3-Trichlorobenzene	<RL	
1,2,3-Trichloropropane	<RL	

1,2,4-Trichlorobenzene	<RL	70 µg/L
1,2,4-Trimethylbenzene	<RL	
1,2-Dichlorobenzene	<RL	600 µg/L
1,2-Dichloroethane	<RL	5 µg/L
1,2-Dibromoethane (EDB)	<RL	
1,2-Dichloropropane	<RL	5 µg/L
1,3,5-Trimethylbenzene	<RL	
1,3-Dichlorobenzene	<RL	
1,3-Dichloropropane	<RL	
1,4-Dichlorobenzene	<RL	75 µg/L
2,2-Dichloropropane	<RL	
2-Chlorotoluene	<RL	
4-Chlorotoluene	<RL	
Benzene	<RL	5 µg/L
Bromobenzene	<RL	
Bromochloromethane	<RL	
Bromodichloromethane (THM)	6.12 µg/L	
Bromoform	4.36 µg/L	
Bromomethane	<RL	
Carbon Tetrachloride	<RL	5 µg/L
Chlorobenzene	<RL	100 µg/L
Chloroethane	<RL	
Chloroform	1.75 µg/L	
Chloromethane	<RL	
Cis-1,2-Dichloroethene	<RL	70 µg/L
Cis-1,3-Dichloropropene	<RL	
Dibromochloromethane (THM)	11.4 µg/L	
1,2-Dibromo-3-chloropropane	<RL	
Dibromomethane	<RL	
Dichlorodifluoromethane	<RL	
Dichlormethane	<RL	5 µg/L
Ethylbenzene	<RL	700 µg/L
Hexachlorobutadiene	<RL	
Isopropylbenzene	<RL	
M,P-Xylenes	<RL	
Methyl-T-butyl-ether (MTBE)	<RL	
n-Butylbenzene	<RL	
n-Propylbenzene	<RL	
Naphthalene	<RL	
O-Xylene	<RL	
P-Isopropyltoluene	<RL	
Sec-Butylbenzene	<RL	
Styrene	<RL	100 µg/L
Tert-Butylbenzene	<RL	
Tetrachloroethene	<RL	5 µg/L
Toluene	<RL	1000 µg/L
Total Trihalomethanes (TTHM)	23.6 µg/L	80 µg/L

Trans-1,2-Dichloroethene	<RL	100 µg/L
Trans-1,3-Dichloropropene	<RL	
Trichloroethene	<RL	5 µg/L
Trichlorofluoromethane	<RL	
Vinyl Chloride	<RL	2 µg/L

Synthetic Organic Compounds found in Raw Water

Compound	Water Results	MLC or AL
Alachlor	<RL	2 µg/L
Aldrin	<RL	
Atrazine	<RL	3 µg/L
Benzo(a)pyrene	<RL	0.2 µg/L
Butachlor	<RL	
Butylate	<RL	
Chlorpyrifos	<RL	
Cyanazine	<RL	
Di(2-ethylhexyl)adipate	<RL	400 µg/L
Di(2-ethylhexyl)Phthalate	<RL	6 µg/L
Dieldrin	<RL	
Endrin	<RL	2 µg/L
Fonofos	<RL	
Heptachlor	<RL	0.4 µg/L
Heptachlor Epoxide	<RL	0.2 µg/L
Hexachlorobenzene	<RL	1 µg/L
Hexachlorocyclopentadiene	<RL	50 µg/L
Lindane	<RL	0.2 µg/L
Methoxychlor	<RL	40 µg/L
Metolachlor	<RL	
Metribuzin	<RL	
Propachlor	<RL	
Simazine	<RL	4 µg/L
Total Chlordane	<RL	2 µg/L
Trifluralin	<RL	

Inorganic Compounds found in Raw Water

Compound	Water Results	MLC or AL
Cyanide	<RL	0.2 µg/L
Sulfate	212	
Antimony, Total	<RL	6 µg/L
Thallium, Total	<RL	2 µg/L
Nickel, Total	<RL	100 µg/L
Beryllium, Total	<RL	4 µg/L

MLC = Maximum Contaminate Level – The concentration of the analysis which has been determined by the EPA to put the public at risk. Concentrations below this level are considered acceptable.

- AL = Action Levels (AL) apply only to lead and copper and are not based on known or expected health effects. An Action Level is the concentration of a contaminant in a sample which, if exceeded and grouped with other samples, triggers treatment techniques or other requirements which a water system must follow.
- <RL = Less than Reporting Limit. The lowest amount of the analyte that can be accurately reported by the method used.
- µg/L = Parts Per Billion

Wastewater Treatment Plant Division

Annual Average	2018-19	2017-18	2016-17	2015-16
Effluent BOD (mg/l)	6.13	4.44	3.74	3.67
Effluent suspended solids (mg/l)	7.47	5.76	5.25	4.09
Effluent pH (standard unit)	7.49	7.44	7.41	7.40
Effluent temperature (°F)	15.56	60.97	60.52	61.49
Effluent NO3 (mg/l)	11.02	18.42	23.51	19.37
Effluent dissolved oxygen (mg/l)	4.80	4.69	4.69	4.72
Influent BOD (mg/l)	143.36	159.65	147.41	163.19
Influent suspended solids (mg/l)	230.04	213.53	221.40	226.93
Influent pH (standard unit)	7.48	7.60	7.52	7.53
Influent temperature (°F)	15.56	60.97	60.52	61.49
Effluent NH3-N (mg/l)	1.39	0.79	0.49	0.44
Influent NH3-N (mg/l)	24.11	23.19	23.94	23.94
	2018-19	2017-18	2016-17	2015-16
Total influent flow (B gal)	1.42	1.27	1.25	1.14
Average daily influent flow (M gal/day)	3.89	3.53	3.43	3.36
Total effluent flow (B gal)	1.49	1.32	1.34	1.21
Average daily effluent flow (M gal/day)	4.09	3.66	3.69	3.59
Total R.A.S. flow (M gal)	809.33	819.69	772.40	736.75
Average daily R.A.S. flow (M gal/day)	2.23	2.27	2.14	2.23
Total W.A.S. flow (M gal)	1.56	12.11	10.29	9.46
Average daily W.A.S. flow (gal/day)	22,906	33,712	28,481	25,990
	2018-19	2017-18	2016-17	2015-16
Sludge pumped (M gal)	5.26	6.48	6.39	6.35
Sludge hauled (ton)	3,557.42	3,763.29	3,596.91	3,436.28
Sludge hauled (Cu Yd)	4,207.42	3,951.45	3,776.76	3,608.09
Total belt press operation (day)	158	151	151	168
Total polymer used (lbs)	3,068	3,436	3,245	3,270
Average daily sludge hauled (ton)	22.52	24.92	23.82	20.45
Average feed solids (%)	6.55	4.11	4.32	4.05
Average cake solids (%)	25.65	24.40	25.50	24.56
Average sludge pumped (gal/day)	36,273	40,519	42,388	42,798
Average polymer used (lbs/day)	20.6	21.4	21.6	22.3
Total plant alarm	22	56.00	67.00	13.00
Total lift station alarm	22	73.00	69.00	13.00
	2018-19	2017-18	2016-17	2015-16
BOD reduction (%)	96	97	97	98
Suspended solids reduction (%)	97	97	98	98
Ammonia reduction (%)	95	97	98	98
Average e-coli (May 1 st – Sept. 30 th)	50.2	24.6	66.4	95.9