

SYSTEM ID: KY 3

NARRATIVE DESCRIPTION

KY 3 is primarily a grid system in Kentucky with the following assets: 3 Tanks, 5 Pumps, 1 Water Treatment Plant, and approximately 277,022 feet of pipe. KY 3 provides 2.02 million gallons of water per day to its 2,142 customers at a rate which ranges between \$4.00 and \$6.45 per 1,000 gallons of water. Water loss for KY 3 is estimated at 10% of the water produced.

NETWORK SCHEMATIC:



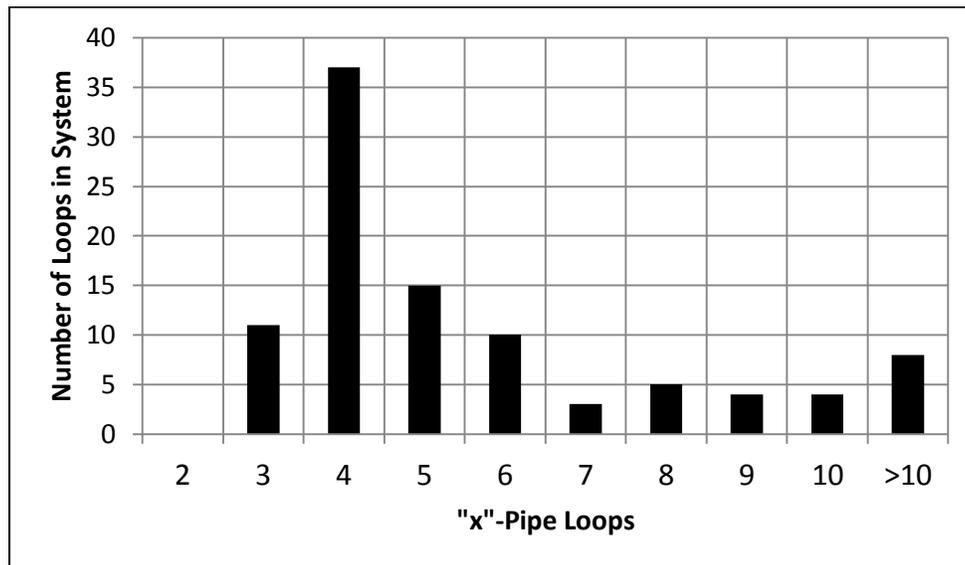
HISTORY OF THE NETWORK FILE

KY 3 was originally created by Matthew Jolly and Amanda Lothes in 2012 as part of the journal article “Research Database of Water Distribution System Models” which was published in 2014 in the *Journal of Water Resources Planning & Management*. This model was updated by Stacey Schall in 2013, and then updated again by Steven Hoagland in 2014.

AVAILABLE INFORMATION

Physical attributes	YES
Schematic diagram	YES
Network geometry data	YES
GIS data file	YES
Background map	YES
Elevation data	YES
Pipe data	YES
<i>Pipe material</i>	YES
<i>Pipe age</i>	YES
<i>Pipe pressure class</i>	NO
<i>Nominal or actual diameters</i>	YES
Pump data	YES
<i>Useful horsepower</i>	YES
<i>Pump operating curves</i>	NO
Tank data	YES
<i>Elevation data</i>	YES
<i>Stage storage curves</i>	NO
<i>Water quality information</i>	NO
Valve data	NO
<i>PRV/FCV data</i>	NO
<i>Isolation valve data</i>	NO
<i>Hydrant data</i>	NO
Demand data	YES
<i>Total system demand</i>	YES
<i>Nodal demand data</i>	YES
<i>Temporal data demands</i>	YES
<i>System leakage</i>	NO
Hydraulic data	YES
<i>Hydraulically calibrated model</i>	NO
<i>Field hydraulic calibration data</i>	NO
Water quality data	NO
<i>Disinfection method</i>	NO
<i>Chlorine residual data</i>	NO
<i>Booster station data</i>	NO
<i>Fluoride/Chloride field data</i>	NO
<i>Water quality calibrated model</i>	NO
Operational data	NO
<i>SCADA datasets</i>	NO
<i>Operational rules</i>	NO

PIPE/LOOP HISTOGRAM:



REFERENCES:

Jolly, M. D., Lothes, A. D., Bryson, L. S., & Ormsbee, L. (2014). Research Database of Water Distribution System Models. *Journal of Water Resources Planning and Management*, 410-416.

DETAILED DATA SUMMARIES

PHYSICAL ASSETS:

Asset Type:	# of Assets
Master Meters	-
Tanks	3
Pumps	5
Pump Stations	NA
Water Treatment Plants	1

NETWORK CHARACTERISTICS:

# Total Pipes:	366
# Branch Pipes:	48
Ratio (Branch Pipes / Total Pipes):	0.131
# Junction Nodes	270
# Reservoirs	3
# Tanks	3
# Regulating Valves	0
# Isolation Values	Unknown
# Hydrants	Unknown
Elevation Data	YES

PIPE DATA:

Diameter (in)	Length (ft)
1	-
1.3	-
1.5	-
2	1,410
3	-
4	18,021
6	94,959
8	71,722
12	37,639
16	-
18	53,271
20	-

PUMP DATA:

Pump Horsepower	YES
Pump Curves:	NO

DEMAND STATISTICS:

Demographic Type	Population	Households
Directly Serviceable:	5,545	1,907
Indirectly Serviceable:	6,518	2,831
Total Serviceable:	12,063	4,738

Production Statistics	
Total Annual Volume Produced (MG):	
Total Annual Volume Purchased (MG):	625.852
Total Annual Volume Provided (MG):	625.852
Estimated Annual Water Loss:	10%

Water Costs	
Customer Type	Cost per 1000 gallons
Customers within the municipality	\$4.02
Customers outside the municipality	\$6.45

CUSTOMERS AND USAGE:

Customer Type	Customer Count	Average Demand (MG)
Wholesale:	2	377.000
Residential:	1,621	68.310
Commercial:	467	51.210
Institutional:		
Industrial:	11	17.530
Other:	41	42.340
Total Customers:	2,142	
Flushing, Maintenance & Fire Protection:		5.210
Total Water Usage:		561.600

DATA FILE ATTRIBUTES:

ATTRIBUTE		UNITS
Pipe Length & Diameter	X	Feet
Pipe Age	X	Yr. Installed
Node Elevation	X	Feet
Node Demand	X	GPM
Valves		
Hydrants		
Tank Levels	X	Feet
Tank Volume	X	Cubic Feet
PRVs		
WTP	X	
WTP Capacity	X	GPD
Pump Data	X	HP