

SYSTEM ID: KY 4

NARRATIVE DESCRIPTION

KY 4 is primarily a loop system in Kentucky with the following assets 4 Tanks, 2 Pumps, and approximately 854446 feet of pipe. KY 4 provides 1.51 million gallons of water per day to its 9,020 customers at a rate which ranges between \$6.46 and \$7.65 per 1,000 gallons of water. Water loss for KY 4 is estimated at 12% of the water produced.

NETWORK SCHEMATIC:



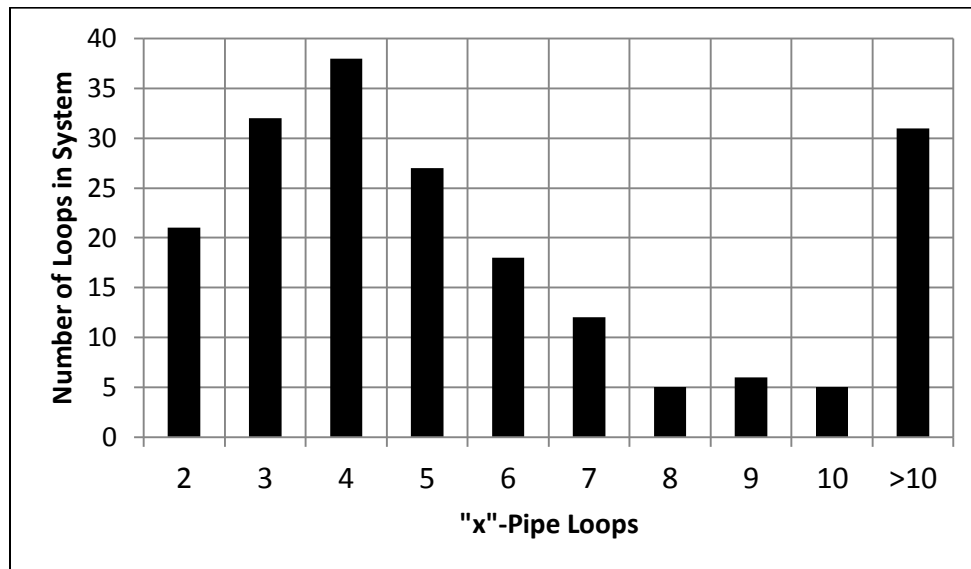
HISTORY OF THE NETWORK FILE

KY 4 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 Schal 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	4
Pumps	2
Pump Stations	NA
Water Treatment Plants	-

NETWORK CHARACTERISTICS:

# Total Pipes:	1156
# Branch Pipes:	368
Ratio (Branch Pipes / Total Pipes):	0.318
# Junction Nodes	962
# Reservoirs	1
# Tanks	4
# Regulating Valves	0
# Isolation Values	Unknown
# Hydrants	Unknown
Elevation Data	YES

PIPE DATA:

Diameter (in)	Length (ft)
1	
1.3	-
1.5	-
2	-
3	27,581
4	171,782
6	224,916
8	331,651
12	88,626
16	9,890
18	-
20	-

PUMP DATA:

Pump Horsepower	YES
Pump Curves:	NO

DEMAND STATISTICS:

Demographic Type	Population	Households
Directly Serviceable:	19,320	7,681
Indirectly Serviceable:		
Total Serviceable:	19,320	7,681

Production Statistics	
Total Annual Volume Produced (MG):	
Total Annual Volume Purchased (MG):	627.760
Total Annual Volume Provided (MG):	627.760
Estimated Annual Water Loss:	12%

Water Costs	
Customer Type	Cost per 1000 gallons
Customers within the municipality	\$6.46
Customers outside the municipality	\$7.65

CUSTOMERS AND USAGE:

Customer Type	Customer Count	Average Demand (MG)
Wholesale:		
Residential:	8,621	482.980
Commercial:	399	68.612
Institutional:		
Industrial:		
Other:		
Total Customers:	9,020	
Flushing, Maintenance & Fire Protection:		
Total Water Usage:		551.592

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