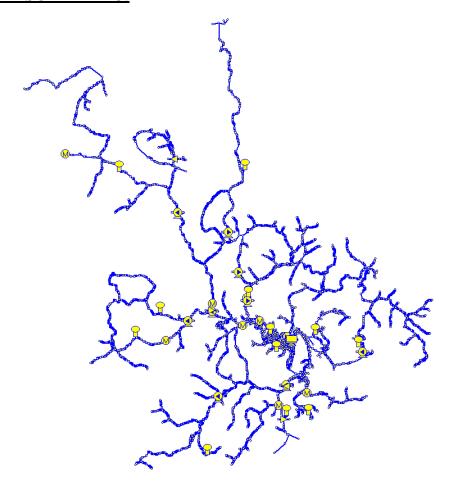
#### **NARRATIVE DESCRIPTION**

KY 10 is primarily a branched system in Kentucky with the following assets: 13 Tanks, 13 Pumps, 1 Water Treatment Plant, and approximately 1353879 feet of pipe. KY 10 provides 2.26 million gallons of water per day to its 9093 customers at a rate which ranges between \$6.00 and \$8.00 per 1,000 gallons of water. Water loss for KY 10 is estimated at 6% of the water produced.

#### **NETWORK SCHEMATIC:**



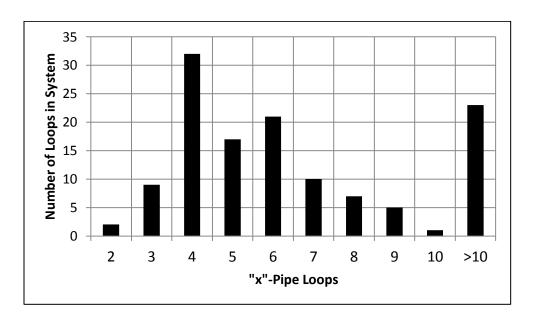
#### **HISTORY OF THE NETWORK FILE**

KY 10 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**

Schematic diagram         YES           Network geometry data         YES           GIS data file         YES           Background map         YES           Elevation data         YES           Pipe data         YES           Pipe material         YES           Pipe material         YES           Pipe pressure class         YES           Pipe pressure class         YES           Nominal or actual diameters         YES           Pump data         YES           Useful horsepower         YES           Pump operating curves         NO           Tank data         YES           Elevation data         YES           Stage storage curves         NO           Water quality information         NO           Water quality information         NO           Valve data         NO           PRV/FCV data         NO           Isolation valve data         NO           No         Isolation valve data         NO           Poblation valve data         NO           Poblation valve data         NO           Poblation valve data         NO           Poblation valve data         NO	Physical attributes	YES
Network geometry data         YES           GIS data file         YES           Background map         YES           Elevation data         YES           Pipe data         YES           Pipe material         YES           Pipe age         YES           Pipe pressure class         YES           Nominal or actual diameters         YES           Pump data         YES           Pump operating curves         NO           Tank data         YES           Elevation data         YES           Stage storage curves         NO           Water quality information         NO           Valve data         NO           PRV/FCV data         NO           Isolation valve data         NO           Mydrant data         YES           Total system demand         YES           Nodal demand data         YES           Temporal data demands         YES           System leakage         YES           Hydraulic data         NO           Field hydraulic data         NO           Disinfection method         NO           Ohoster station data         NO           Fluoride/Chloride field data		YES
GIS data file         YES           Background map         YES           Background map         YES           Pipe tata         YES           Pipe data         YES           Pipe material         YES           Pipe age         YES           Pipe pressure class         YES           Nominal or actual diameters         YES           Pump data         YES           Pump oberating curves         NO           Tank data         YES           Elevation data         YES           Stage storage curves         NO           Water quality information         NO           Water quality information         NO           PRV/FCV data         NO           Isolation valve data         NO           Hydrant data         NO           Demand data         YES           Total system demand         YES           Nodal demands         YES           System leakage         YES           Hydraulic data         NO           Field hydraulic calibrated model         NO           Field hydraulic calibrated model         NO           Field hydraulic calibrated model         NO           Disinfec		YES
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Elevation data         YES           Pipe data         YES           Pipe material         YES           Pipe age         YES           Pipe pressure class         YES           Nominal or actual diameters         YES           Pump data         YES           Useful horsepower         YES           Pump operating curves         NO           Tank data         YES           Elevation data         YES           Stage storage curves         NO           Water quality information         NO           Valve data         NO           PRV/FCV data         NO           Isolation valve data         NO           Isolation valve data         NO           Isolation valve data         NO           Pemand data         YES           Total system demand         YES           Temporal data demands         YES           Temporal data demands         YES           System leakage         YES           Hydraulic data         NO           Field hydraulic calibrated model         NO           Field hydraulic calibration data         NO           Obisinfection method         NO <t< td=""><td>Background map</td><td>YES</td></t<>	Background map	YES
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Temporal data demandsYESSystem leakageYESHydraulic dataYESHydraulically calibrated modelNOField hydraulic calibration dataNOWater quality dataNODisinfection methodNOChlorine residual dataNOBooster station dataNOFluoride/Chloride field dataNOWater quality calibrated modelNO	Total system demand	YES
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Hydraulically calibrated modelNOField hydraulic calibration dataNOWater quality dataNODisinfection methodNOChlorine residual dataNOBooster station dataNOFluoride/Chloride field dataNOWater quality calibrated modelNO	System leakage	YES
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Fluoride/Chloride field data NO Water quality calibrated model NO	Chlorine residual data	NO
Water quality calibrated model NO	Booster station data	NO
	Fluoride/Chloride field data	NO
Operational data NO	Water quality calibrated model	NO
	Operational data	
SCADA datasets NO	SCADA datasets	NO
Operational rules NO	Operational rules	NO

## **PIPE/LOOP HISTROGRAM:**



#### **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	13
Pumps	13
Pump Stations	NA
Water Treatment Plants	1

## **NETWORK CHARACTERISTICS:**

# Total Pipes:	1043
# Branch Pipes:	473
Ratio (Branch Pipes / Total Pipes):	0.453
# Junction Nodes	917
# Reservoirs	2
# Tanks	13
# Regulating Valves	0
# Isolation Values	Unknown
# Hydrants	Unknown
Elevation Data	YES

## **PIPE DATA:**

Diameter (in)	Length (ft)
1	1355
1.3	-
1.5	-
2	58,375
3	87,727
4	342,334
6	680,742
8	162,541
12	20,805
16	-
18	-
20	-

# **PUMP DATA:**

Pump Horsepower	YES
Pump Curves:	NO

## **DEMAND STATISTICS:**

Demographic Type	Population	Households
Directly Serviceable:	21,809	9,942
Indirectly Serviceable:	8,872	4,113
Total Serviceable:	30,681	14,055

Production Statistics	
Total Annual Volume Produced (MG):	1,030.000
Total Annual Volume Purchased (MG):	
Total Annual Volume Provided (MG):	1,030.000
Estimated Annual Water Loss:	6%

Water Costs	
Customer Type	Cost per 1000 gallons
Customers within the municipality	\$5.81
Customers outside the municipality	\$7.90

## **CUSTOMERS AND USAGE:**

<b>Customer Type</b>	<b>Customer Count</b>	Average Demand (MG)
Wholesale:	1	
Residential:	8349	811
Commercial:	743	160
Institutional:		
Industrial:		
Other:		
Total Customers:	9093	
Flushing, Maintenance		
& Fire Protection:		0.51
Total Water Usage:		971.51

# **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