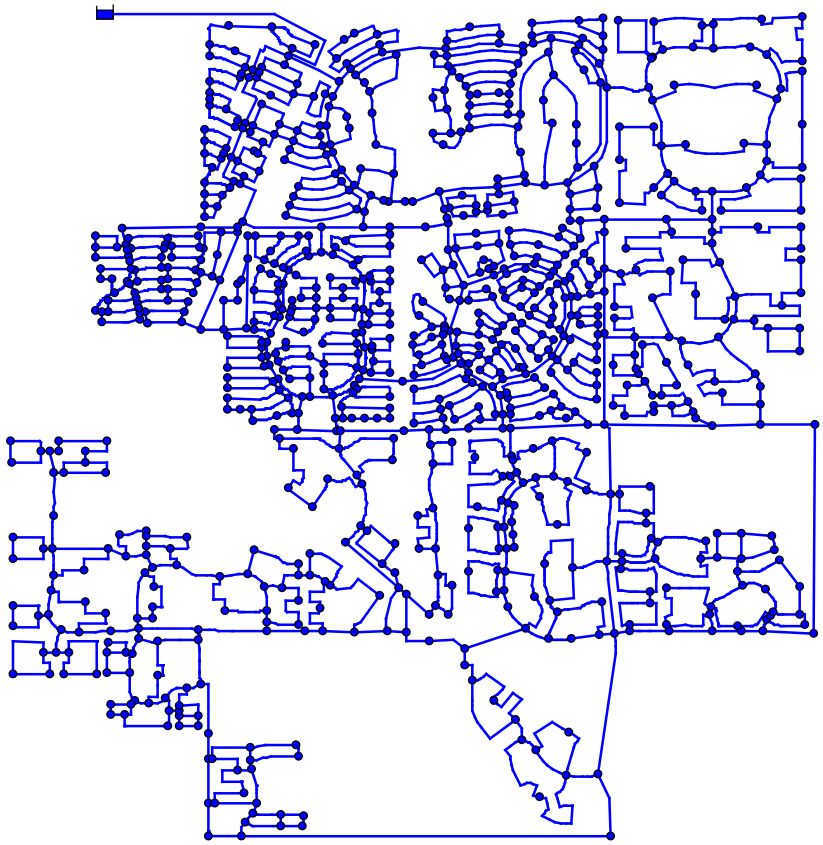
SYSTEM ID: KL Network

NARRATIVE DESCRIPTION

The KL network is a modified form of the network first presented by Kang and Lansey (2012) with the pumps and fire-fighting conditions being excluded. The unit costs of pipes were taken from Kadu et al. (2008). The average annual demand is 7.69 MGD.

NETWORK SCHEMATIC:



HISTORY OF THE NETWORK FILE

The KL network was first optimized by Bi et al (2015) by incorporating domain knowledge into a genetic algorithm model.

AVAILABLE INFORMATION

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

REFERENCES:

Bi, W., Dandy, G. C. and Maier, H. R. (2015) Improved genetic algorithm optimization of water distribution system design by incorporating domain knowledge, Environmental Modelling & Software, Vol. 69, 370-381.

Kang, D., and Lansey, K., 2012. Revisiting optimal water-distribution system design: issues and a heuristic hierarchical approach. J. of Water Resources Plan. and Man., 138(3), 208-217.

DETAILED DATA SUMMARIES

PHYSICAL ASSETS:

Asset Type:	# of Assets
Master Meters	0
Tanks	0
Pumps	0
Pump Stations	0
Water Treatment Plants	0

NETWORK CHARACTERISTICS:

# Total Pipes:	1274
# Branch Pipes:	0
Ratio (Branch Pipes / Total Pipes):	0.00
# Nodes	935
# Reservoirs	1
# Tanks	0
# Regulating Valves	Unknown
# Isolation Values	Unknown
# Hydrants	Unknown
Elevation Data	YES

PIPE DATA:

Diameter (mm)	Length (m)
150	To be determined
200	To be determined
300	To be determined
400	To be determined
500	To be determined
600	To be determined
700	To be determined
800	To be determined
900	To be determined
1000	To be determined

PUMP DATA:

Pump Horsepower	NO
Pump Curves:	NO

DEMAND STATISTICS:

Demographic Type	Population	Households
Directly Serviceable:	Unknown	Unknown
Indirectly Serviceable:	Unknown	Unknown
Total Serviceable:	Unknown	Unknown

Production Statistics	
Total Annual Volume Produced (MG):	7.69
Total Annual Volume Purchased (MG):	7.69
Total Annual Volume Provided (MG):	7.69
Estimated Annual Water Loss:	Unknown

Water Costs	
Customer Type	Unknown
Customers within the municipality	Unknown
Customers outside the municipality	Unknown

CUSTOMERS AND USAGE:

Customer Type	Customer Count	Average Daily Demand (MGD)
Wholesale:		
Residential:		
Commercial:		
Institutional:		
Industrial:		
Other:		
Total Customers:		
Flushing, Maintenance & Fire Protection:		
Total Water Usage:		7.69

DATA FILE ATTRIBUTES:

ATTRIBUTE		UNITS
Pipe Length & Diameter	X	Metres, mm
Pipe Age		
Node Elevation	X	Metres
Node Demand	X	L/s
Valves		
Hydrants		
Tank Levels		
Tank Volume		
PRVs		
WTP		
WTP Capacity		
Pump Data		