



# 3Waters Modelling Tool Data Requirements

Your guide to understanding the data inputs required to  
implement the IDS 3Waters Modelling Tool.

DATA ITEM	DESCRIPTION	IMPORTANCE	DATA SOURCE
Water Supply Pipe ID	Asset ID	 <b>High:</b> Not required for modelling but important for linking back to asset data.	GIS/Asset Register
Length	Length of Pipes	 <b>High:</b> Length is important for calculating breaks per km as well as treatment costs. Ensure pipe lengths are not too long or too short. Recommend breaking long pipes into shorter sections.	GIS/Asset Register
Capacity Need	<i>Capacity need (1-4):</i> 1. Pipe is under capacity and needs to be replaced immediately. 2. Pipe is under capacity and needs to be replaced when replacement becomes an option because of breaks. 3. Pipe has no capacity issues. 4. Unknown.	 <b>Medium:</b> If unknown, pipes will not be replaced for capacity reasons. Pipes with an immediate need (category 1) are triggered for pipe replacement based upon capacity alone. Pipes with no capacity need are triggered for pipe replacement only when the break rate exceeds the established thresholds. The model can be set to prioritise category 2 pipes over category 3. When a pipe has been replaced, the capacity need is set to 3 which indicates no capacity issues.	Hydraulic Modelling
No. of Connections	Number of connections that will be lost if the pipe is out of service. Determines impact on service.	 <b>Optional:</b> Not currently used by the model, can be used for reporting on Level of Service. Potential future model input.	Hydraulic Modelling
Criticality	Consequence of failure on a scale of 1-5 where 5 is most critical and 1 is least critical.	 <b>High:</b> Used in logical decisions for inspections and replacements. The model prioritises renewal of higher criticality pipes over low.	Criticality study. Should be recorded in GIS/Asset Register
Installed Date	Date the pipe was installed	 <b>High:</b> Used to calculate age. Age is an input to both the Probability of Failure and Break Rate models.	GIS/Asset Register
Pipe Condition	Lastest pipe condition	 <b>Optional:</b> Can be used to adjust the age value of the pipes to reflect actual condition if known, for input into the deterioration curves.	Outputs of condition inspections
Condition Assessment Date	Date Condition was recorded	 <b>Optional</b>	Outputs of condition inspections
Place Holder for Age	Adjusted age of pipe	 <b>Optional:</b> If this is populated it is used as the pipe age, otherwise the age is calculated from the install date. <i>(See Pipe Condition)</i>	Age from condition assessment
Pipe Diameter	Diameter of the pipe in mm	 <b>High:</b> Diameter is an input to the Probability of Failure model and treatment costs.	GIS/Asset Register
Material	Material of the pipe	 <b>High:</b> Pipe material is used in models, triggers, costs.	GIS/Asset Register
Pressure	Operating pressure of the pipe (m)	 <b>High:</b> Pressure is an input to the Probability of Failure and pipe break models.	Hydraulic Modelling
Pipe Type	e.g. service, main, truck etc.	 <b>Optional:</b> For reporting.	GIS/Asset Register

#### OTHER DATA REQUIREMENTS FOR MODELLING

Treatment Costs	Typically a table of \$/lineal metre for each pipe material/diameter but can be modified to suit any calculation. Treatment costs could be influenced by other factors such as the surface material above the pipe and the depth of pipe.
Annual Budgets	Annual CAPEX and OPEX budgets for pipe replacements. Historic information is useful for model calibration and predicted future investment is used for scenario testing.
Break Rates	Any historical data relating to breaks in the network. Used for model calibration. Ideally this will be at a pipe level, but models can be calibrated at a network level. If no break history is available, calibration from previous IDS analysis on other networks can be used.

IDS have developed this document to give users a better understanding of the data inputs required to implement the IDS 3Waters Modelling Tool. You can still use the tool even if some of the data requirements specified are not available on your network. We encourage you to talk to our IDS team about your specific 3Waters networks and requirements.

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