

# DIN ISO 24516-1:2021-02 (E)

## Guidelines for the management of assets of water supply and wastewater systems - Part 1: Drinking water distribution networks (ISO 24516-1:2016)

---

Contents	Page
Foreword .....	16
Introduction .....	17
1 Scope .....	19
2 Normative references .....	19
3 Terms and definitions .....	19
4 Principles aspects of the management of assets .....	23
4.1 Objectives and requirements .....	23
4.1.1 Objectives .....	23
4.1.2 Functional requirements .....	23
4.1.3 Performance requirements .....	24
4.2 General aspects .....	25
4.2.1 General .....	25
4.2.2 Principal aspects -- Drinking water utilities .....	25
4.2.3 Principal aspects -- Drinking water systems .....	26
4.2.4 Integrating the principal aspects .....	26
4.3 Risks and life cycle aspects .....	27
4.3.1 Risk .....	27
4.3.2 Life cycle .....	28
4.4 Structuring the process for management of assets .....	28
4.4.1 General .....	28
4.4.2 Strategies for the management of assets .....	29
4.4.3 Periods of planning .....	30
4.4.4 Strategic level activities .....	31
4.4.5 Tactical level activities .....	31
4.4.6 Operational level activities .....	31
5 Investigation .....	32
5.1 General .....	32
5.2 Purpose of investigation .....	32
5.2.1 General .....	32
5.3 Determine the scope of the investigation .....	32
5.4 Data collection .....	32
5.4.1 General .....	32
5.4.2 Data requirements .....	33
5.4.3 Inventory data .....	33
5.4.4 Failure data .....	34
5.4.5 Further condition data .....	34
5.5 Data registering and data assignment .....	36
5.5.1 Data registering .....	36
5.5.2 Data assignment .....	36
5.5.3 Geo-referencing .....	37
5.6 Review of existing information .....	37
5.7 Inventory update .....	37
5.8 Types of investigation .....	38
5.8.1 Hydraulic investigation .....	38
5.8.2 Structural investigation .....	38

5.8.3	<b>Operational investigation .....</b>	38
5.9	<b>Review of performance information .....</b>	39
5.10	<b>Planning of investigation .....</b>	40
5.11	<b>Performance testing .....</b>	40
6	<b>Assessment .....</b>	40
6.1	<b>Principles .....</b>	40
6.2	<b>Assessment of the hydraulic performance .....</b>	41
6.3	<b>Assessment of the structural condition .....</b>	41
6.4	<b>Assessment of operational performance .....</b>	41
6.5	<b>Compare with performance requirements .....</b>	41
6.6	<b>Identification of unacceptable impacts .....</b>	42
6.7	<b>Identify causes of performance deficiencies .....</b>	42
7	<b>Planning .....</b>	42
7.1	<b>General .....</b>	42
7.2	<b>Develop integrated solutions .....</b>	43
7.3	<b>Assess solutions .....</b>	43
7.4	<b>Prepare action plan .....</b>	44
8	<b>Implementation .....</b>	44
8.1	<b>General .....</b>	44
8.2	<b>Create/update plan .....</b>	45
8.3	<b>Carry out work .....</b>	45
8.4	<b>Monitor performance .....</b>	45
8.5	<b>Review performance .....</b>	45
9	<b>Operation and maintenance .....</b>	45
9.1	<b>General .....</b>	45
9.2	<b>Operation .....</b>	46
9.3	<b>Maintenance .....</b>	47
10	<b>Rehabilitation .....</b>	47
10.1	<b>General .....</b>	47
10.2	<b>Strategic plan for rehabilitation of physical infrastructure (long-term planning) .....</b>	48
10.2.1	<b>General .....</b>	48
10.2.2	<b>Service life and failure rate development .....</b>	49
10.2.3	<b>Determining the need for rehabilitation of physical infrastructure .....</b>	51
10.2.4	<b>Budgeting .....</b>	52
10.3	<b>Tactical plan for rehabilitation of physical infrastructure (mid-term planning) .....</b>	52
10.3.1	<b>Risk-based evaluation approach .....</b>	52
10.3.2	<b>Individual evaluation and prioritizing .....</b>	53
10.3.3	<b>Coordination with other construction activities .....</b>	54
10.4	<b>Operational plan -- Implementation of rehabilitation measures (short-term planning) .....</b>	54
11	<b>Documentation and efficiency review .....</b>	54
	<b>Annex A (informative) Further objectives of the management of assets of drinking water networks .....</b>	56
	<b>Annex B (informative) Examples for the assessment of service life and failure rates of pipes .....</b>	58
	<b>Annex C (informative) Examples for risk consideration in management of assets .....</b>	60
	<b>Bibliography .....</b>	63