

Highlights of Portland Water Bureau's Asset Management Program (2004–2013)

ACTION or EVENT	BENEFIT or RESULT	FUNCTIONAL AREA							
		Condition Assessment	Risk Assessment	Service Levels	Business Case Analysis	Maintenance, Repair, Replacement Strategies	Data Management	Benchmarking	Education and Research
2004									
Asset management planning group created.	<ul style="list-style-type: none"> Created a road map for asset management at the bureau Provided decision support for projects Staff represented Water Bureau in City Asset Management Planning Committee 	✓	✓		✓	✓			✓
2005									
Consequence and Likelihood Evaluation Matrix (CLEM) created.	Bureau adopted standards for quantifying risk and started assessing all system assets by the CLEM standards	✓	✓			✓			
First Distribution Mains AMP	Centralized asset data, provided first asset-based analyses	✓	✓			✓	✓		
Hydrant maintenance business case created	<ul style="list-style-type: none"> First business case targeting maintenance and operations practices Reduced level of service for some hydrants to tolerable risk levels, allowed for reallocation of resources 	✓	✓	✓	✓				
Asset Management Steering Committee (AMSC) formed	Cross-functional team of bureau executives and managers to guide and monitor AM program	✓	✓			✓	✓		✓
Strategic Asset Management Gap Analysis self-assessment—first round	Provided best practices for asset management activities							✓	✓
2007									
Bureau adopted Asset Management Charter .	Formalized integration of asset management into all bureau activities							✓	✓
2008									
Council Crest Tank additional storage business case	First business case to result in decision to resolve the business need without building additional capital asset			✓	✓	✓			
Business cases for Soapstone Landslide and Taylors Ferry Pump Station	First business cases that <ul style="list-style-type: none"> used triple bottom line factors of health, safety and/or fire flow to assess impacts of failure. quantified risks in terms of costs. 		✓		✓				
IWA-WSAA benchmarking self-assessment —first round	Provided roadmap for asset management improvement							✓	✓
Bureau formally adopted key service levels in Strategic Plan .	Provided high-level criteria for asset management at the bureau		✓	✓	✓			✓	
Strategic Asset Management Gap Analysis self-assessment—second round	Showed 40 percent overall improvement since 2005 in asset management practices and procedures							✓	✓
2009									
Development of business case analysis model, guide, and training	<ul style="list-style-type: none"> Disseminated business-case analysis methods to bureau staff and other utilities practicing asset management Since 2006, business case evaluations of projects have resulted in an estimated \$52 million in avoided costs. 				✓				✓
Published first annual report on status of key service levels	Provided internal benchmarking on progress towards goals		✓	✓	✓			✓	
Portland Heights pump main business case	First business case that resulted in decision to replace a critical subasset instead of replacing the entire asset.				✓	✓			✓
Bridge condition assessment	Pipes crossing major highway (Interstate 84) are identified as high-likelihood issue at a high-consequence location are addressed prior to catastrophic failure.	✓	✓			✓			
2010									
Business case analysis integrated into project planning reports	Required analysis of life-cycle costs compared to benefits in alternatives analysis				✓				✓
SE McLoughlin main break consequence evaluation	First analysis to use triple bottom line valuations for traffic delays and paving costs			✓	✓				
Gap analysis and business case tools described in professional publication	PWB's use of cost-benefit analysis and gap-analysis tools published in Drinking Water Research , a publication of the Water Research Foundation					✓			✓
Infrastructure management risk service level met	Bureau first reports meeting service level established for inspection, testing, and repair of extreme- or high-risk assets					✓			✓

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2011									
Carolina pump main business case	First major bureau business case that quantified risks to major transportation right-of-way (Interstate 5) from water-system asset failure			✓	✓				
Business case studies shared with professional research organization	PWB provided business cases on efforts to reduce risk, assess condition, and incorporate triple bottom line factors to the Water ID national database of water infrastructure information	✓	✓	✓	✓	✓			✓
PWB received national utility award for asset management practices	Sustainable Water Utility Infrastructure Management Center presented award to PWB for Excellence in Support of Asset Management Practices							✓	✓
Reliability Centered Maintenance (RCM) pilot in pump stations	<ul style="list-style-type: none"> Realized about \$79,000 in avoided costs for one year Avoided the use of 1 million kWh of electricity for 2011, which helped shrink the bureau's carbon footprint 	✓	✓			✓			
2012									
IWA-WSAA benchmarking self-assessment —second round	Second-round report showed that the Portland Water Bureau <ul style="list-style-type: none"> experienced significant improvement since 2008 in almost all areas of asset management. is a best-practice leader in developing AMPs, using business cases, and taking advantage of research. 							✓	✓
Asset Management Plans published for 14 assets, included 325 strategic recommendations	AMPs for Conduits, Distribution Mains, Facilities, Fountains, Groundwater System, Hydrants, Pump Stations, Roads, Services, System Meters, Tanks, Transmission Mains, Line Valves, and Wholesale Meters provided <ul style="list-style-type: none"> a list of 325 strategic recommendations for assessing and reducing risk at the asset level. initial forecasts of replacement horizons for some assets. information to support decision-making. 	✓	✓	✓	✓	✓	✓		
City of Portland Auditor publishes report on PWB AM program.	Acknowledged PWB as leading utility practitioner and provided recommendations for potential improvements							✓	✓
2013									
List of 15 recommended short-term strategies selected by AMSC committee from AMP recommendations	<ul style="list-style-type: none"> Recommended business case evaluations for several projects Explored revised strategy for pipe replacement Recommended improving pipe assessment practices 	✓	✓	✓	✓	✓			
Project case studies shared with professional publication.	Project case studies and business case tools featured in McGraw Hill Report on Water Infrastructure Asset Management: Adopting Best Practices to Enable Better Investments				✓				✓
Business cases requested by water utilities.	As a best-practice leader, the Water Bureau shares business cases that incorporate valuations for risk associated with safety, traffic, fire flow, and pressure with other water utilities		✓	✓	✓				✓
PWB management analysis of AMP recommendations and findings	Focused management attention on <ul style="list-style-type: none"> data management critical assets cross-functional collaboration to leverage opportunities for maintenance, repair, renewal, and risk reduction adoption of strategic frameworks for asset management such as RCM 	✓	✓	✓	✓	✓	✓		
Seven additional AMP drafts anticipated to be published	Will provide asset data and information for Facility Valves, Large Meters, Regulators, Terminal Storage Reservoirs, Bull Run Supply, Vaults, Data Management	✓	✓	✓	✓	✓	✓		

Abbreviations

AM: asset management
AMP: Asset Management Plan
AMSC: Asset Management Steering Committee
CLEM: Consequence and Likelihood Evaluation Matrix

CMMS: Computerized maintenance management system
IWA-WSAA: International Water Association and Water Services Association of Australia
PWB: Portland Water Bureau
RCM: Reliability centered maintenance