

# Asset Management

Towards Infrastructure  
Sustainability



## AECOM and Asset Management

AECOM is a premier, fully integrated professional and technical services firm positioned to design, build, finance and operate infrastructure assets around the world for public- and private-sector clients. With nearly 100,000 employees — including architects, engineers, designers, planners, scientists and management and construction services professionals — serving clients in over 150 countries around the world. The company is a leader in all of the key markets that it serves, including transportation, facilities, environmental, energy, oil and gas, water, high-rise buildings and government. AECOM provides a blend of global reach, local knowledge, innovation and technical excellence in delivering customized and creative solutions that meet the needs of clients' projects.

We have been at the forefront of implementing asset management and sustainable infrastructure planning solutions in Canada for over 20 years. Through this work, our team of management, business, engineering and technical professionals has established a strong reputation and proven track record for delivering industry-leading solutions and for adding value to our clients' organizations. When combined with leading AECOM experts from Canada, the U.S., Australia, New Zealand, and the UK, we are truly able to deliver world class solutions and expertise. Our philosophy is that to be effective,

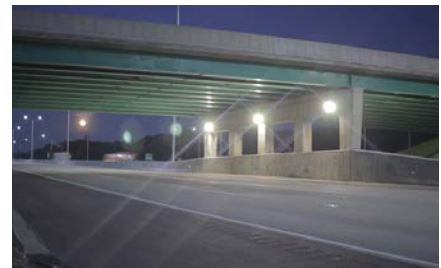
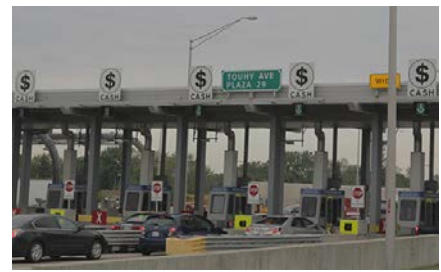
the concept of sustainability must be embraced as a way of doing business. In order to achieve true sustainability and meet the lifecycle needs in a fiscally responsible manner, the principles of sustainability and asset management should be aligned corporately, and be reflected in every process, decision and activity an organization undertakes, including its approach to asset management itself.

### Core Services

- ISO5500X, PAS55:2008, and IIMM compliance and training
- Performance Measurement and Benchmarking
- Level of Service
- Condition Assessment
- Risk Management
- Financial Planning
- Operations and Maintenance
- Capability Assessment/Strategic Planning
- Decision Support Systems and Technology



**Framework for Sustainable Infrastructure**  
 Source: Adapted from Asset Management for Sustainable Service Delivery: A BC Framework



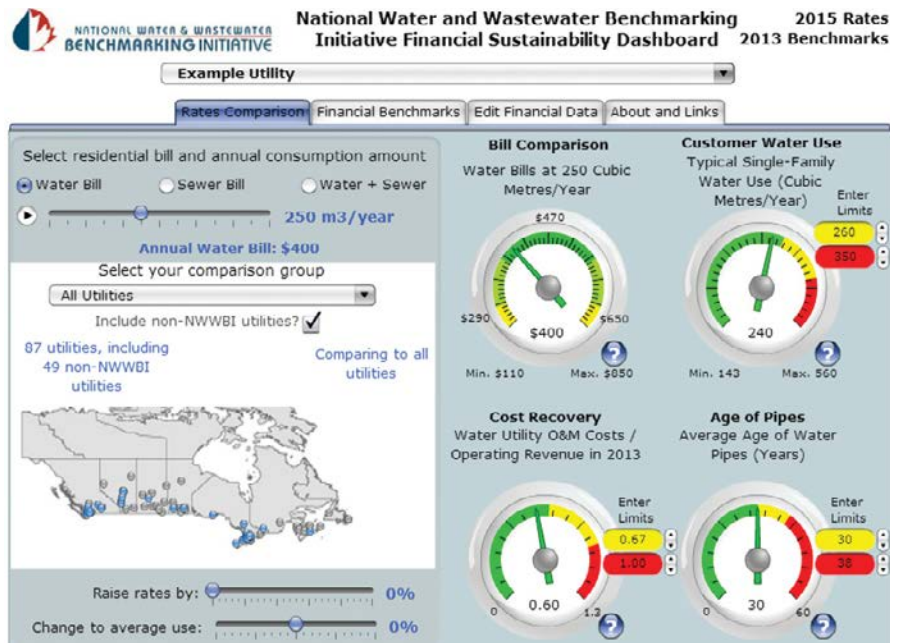
### Illinois Tollway General Engineering Consultant

The 286-mile Illinois Tollway System functions as an essential component of the transportation network in Northern Illinois. AECOM functions as the General Engineering Consultant (GEC) providing asset management services for roadway, structural and building facility elements. Additionally, AECOM provides technical and programming support for the Illinois Tollway Congestion-Relief Program (CRP) and Move Illinois capital programs with a combined value of \$17.8-billion beginning in 2005 and spanning to 2026.

AECOM is developing an automated asset management solution for the Illinois Tollway which includes computer based field data collection, graphical representation of asset inventory and noted deficiencies, integration with mapping software, automated reporting of condition, useful life forecast models, maintenance forecast models, deficiency repair tracking, contract development and tracking, integration with the Illinois Tollway work order systems, fleet maintenance and tracking, baseline establishment for the tracking of environmental "Green" initiatives, etc.

## Canadian National Water and Wastewater Benchmarking Initiative

This project was developed in response to a need for Canadian municipal water and wastewater utilities to measure, track and report on their utility performance. While fundamentally a high level metric benchmarking process, it has developed into a network and information base for Canada's most progressive municipal utilities. The Canadian National Water & Wastewater Benchmarking Initiative was started in 1998 and has since grown to 45 member municipalities participating in stormwater, water and wastewater benchmarking – see [www.nationalbenchmarking.com](http://www.nationalbenchmarking.com) for more information.



## Northeast Illinois Regional Commuter Railroad Corporation (Metra) Metra Capital Asset Condition Assessment Project

AECOM is undertaking a complete inventory and condition assessment of all Metra assets to establish a process for prioritizing capital investments and monitoring the agency's progress towards a State of Good Repair (SGR). A baseline measure of where the agency currently stands will be identified to determine how much of the existing Metra system is in a State of Good Repair and whether funds programmed to maintain and advance the condition of assets is adequate. In the future, AECOM will provide technical support and training to allow Metra to assume management of the asset database and SGR decision-making model.

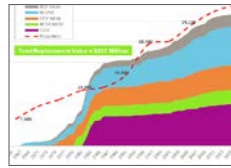


AECOM's work is being overseen by a committee of Metra senior staff to reach consensus on details of the program. AECOM is assisting the committee review and evaluate industry best practices, to help identify appropriate approaches. The overall process will culminate in a document that marks the goals and uses of the data. The data will be compiled in a format that will allow assets to be linked to projects, which in turn can be organized into specific policy-based scenarios.

# Global Asset Management Experience



Cityworks Computerized Maintenance Mgt Systems Configuration, Detroit, MI



Asset Management Planning and Water and Wastewater Services, Vancouver, BC



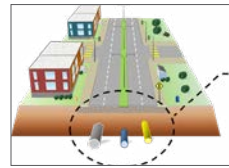
Asset Renewal Study, Penticton, BC



Asset Management Planning, Richmond Hill, ON



Decision Support System-Business Requirements, Guelph, ON



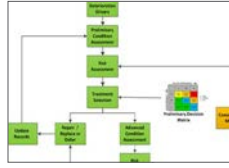
Integration of Underground Utilities, Vaughan, ON



Building Condition Assessment and Life Cycle Report, Whistler, BC



Asset Management Plan Pilot Transportation Assets - Risk Models, New Westminster, BC



Risk Assessment and Rehabilitation of Potable Watermains, Colorado Springs, CO



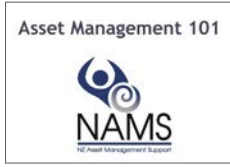
Sewer System Improvement Program - Sewer Condition Assessment, San Francisco, CA



Condition Assessment of Force Main Infrastructure, Virginia Beach, VA



Wastewater River Crossing Assessment, Winnipeg, ON



Introduction to Asset Management Training, New Zealand



Capital Asset Prioritization and State-of-Good-Repair Analysis, Santa Clara Valley, CA



Strategic Asset Management Plan Development, Hong Kong



Strategic Asset Management Plans Development, New Zealand



Asset Management Benchmarking, Australia



Maintenance Expense and Optimization Study, San Jose, CA



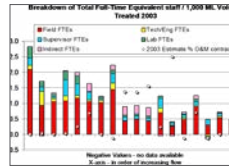
Asset Management Strategies, Hamilton, ON



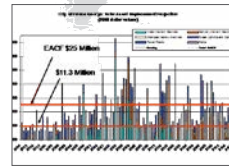
Asset Management Strategy Gap Assessment, York, ON



Systemwide Condition Assessment and Capital Investment Plan, Boston, MA



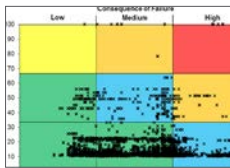
National Water and Wastewater Benchmarking Initiative, Canada



Asset Management Strategy; Advanced Decision Making Software, Prince George, BC



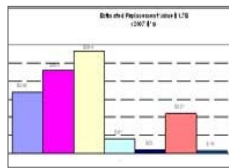
Asset Management Initiative, Swift Current, SK



Criticality/Vulnerability Assessment and Development of Risk Management Strategies, York Region, ON



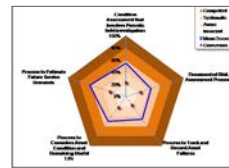
Sustainable Asset Management Framework Implementation, Strathcona County



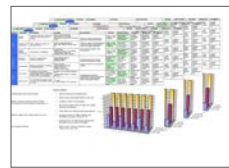
Water, Sanitary, and Storm Systems Asset Management and Financial Plans, Brantford, ON



Water Supply Joint Optimization Study, Toronto, ON



Asset Management Gap Analysis; Risk and Criticality Assessment; and Strategic Direction Study, City of Surrey, BC



High-Level Asset Management Framework and Infrastructure Inventory Management, Town of Chestermere, AB

**AECOM**

A selection of AECOM's major asset management projects from around the world.

Endorsed by the Institute of Asset Management, our team unites world class solutions with local experience to help asset owners assess, plan and manage their infrastructure.



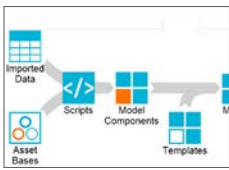
**High Risk Gravity Mains (Sewers)**  
Capital Improvement Program Management, Detroit, MI



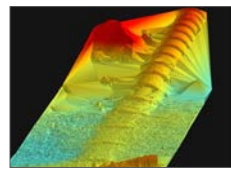
**Basin Facilities Planning/Regionalization**, Pittsburgh, PA



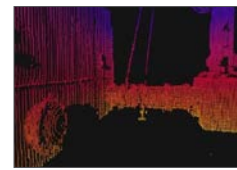
**Asset Management Strategy to Improve O&M Efficiency**, Washington, DC



**Yorkshire Water Decision Making Framework**, Northern UK



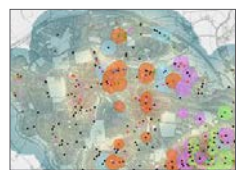
**Trunk Sewer Inspection and Surveying (No.1130)**, Washington, DC



**Trunk Sewer Inspection and Surveying (No. 6031)**, Washington, DC



**Risk-Based Condition Assessment Model/Inventory Screening**, Tampa Bay, FL



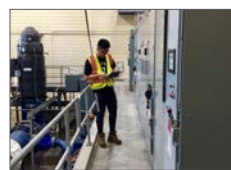
**Deterioration Modeling and Prioritization**, UK, Scotland



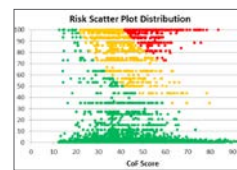
**Iona Island WWTW Condition Assessment**, Metro Vancouver, BC



**Risk Assessment – Utilities and Transportation**, Burnaby, BC



**Buffalo Pound WTP Data Collection and Barcoding**, Regina, SK



**Stormwater Asset Management Plan**, Sudbury, ON



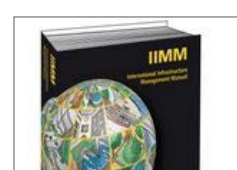
**Asset Management Plans Development**, Australia



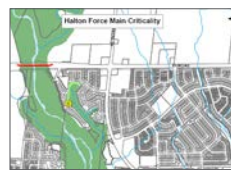
**Asset Management Status Reviews**, New Zealand



**Metra Capital Asset Condition Assessment Project**, Northern Illinois



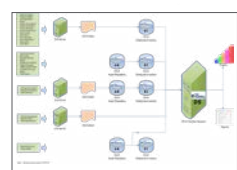
**Principal Authors of International Infrastructure Management Manual**



**Force Main Condition Assessment and Risk Model**, Halton, ON



**Asset Inspections and Maintenance Scheduling**, South West, Midlands, UK



**Asset Management Optimization**, Abbotsford, BC



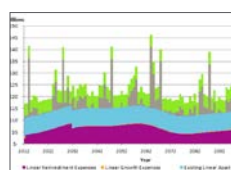
**Infrastructure Asset Management Program Development**, Town of Langley, BC



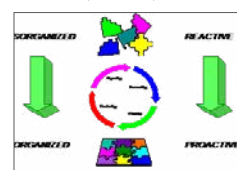
**Asset Management Plan; GIS Development; and Cartograph Integration**, Bracebridge, ON



**Asset Management Plan and WorkTech Integration**, Innisfil, ON



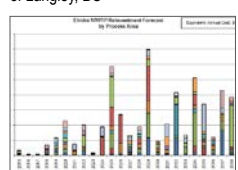
**Infrastructure System Sustainability Assessment**, Guelph, ON



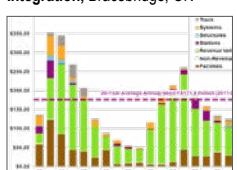
**Maintenance Management Program Optimization Analysis**, Richmond, BC



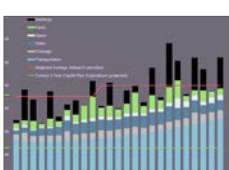
**Condition and Capacity Assessment Framework Development**, Kingston, ON



**Asset Inventory Development and Condition Assessment**, Region of Waterloo, ON



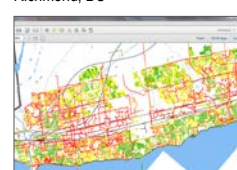
**State-of-Good-Repair Analysis and Asset Management Projects**, Translink BC



**Sustainable Funding Review**, Township of Langley, BC



**Light-Rail Transit (LRT) – Water; Wastewater; Stormwater Operational Impact Study**, Hamilton, ON



**Valve and Watermain Risk-Assessment and Development of Water Distribution Management Framework for Operational Activities**, Halton, ON



### City of Prince George Asset Management Program

AECOM has been the City of Prince George's preferred Asset Management Service provider since 2004, assisting the City to create and implement a Strategic Infrastructure Asset Management Plan that incorporated all of its major assets: roads, utilities, parks, recreational facilities and fleet. Beginning with the identification of City assets and existing departmental asset management processes and tools, AECOM has helped the City to assess its asset management strategies, create infrastructure replacement schedules and costs, and finally select and implement software that models capital rehabilitation and replacement strategies for periods of up to 100 years. AECOM is glad to have contributed to Prince George being considered one of the leading medium-sized Canadian cities in terms of asset management.





## **Brisbane Airport Corporation Strategic Asset Management**

Brisbane Airport Corporation (BAC) is currently the second busiest single runway airport in the world, and with its rank of 21st in the 2013 SkyTrax World Airport Rankings, has the highest ranking for an Australian airport. BAC selected AECOM to develop a first tranche of strategic asset management plans. AECOM prepared a strategic plan for the provision of asset management services by BAC and was subsequently asked to develop a second and third tranche of asset management plans for other asset categories. AECOM developed a standardized approach for condition assessment and a template for BAC's strategic asset management plans that is consistent with ISO55001. BAC now has standardized, risk-based, cost optimized asset management plans and cash flow projections addressing current and near future performance. This provides BAC with an optimal, sustainable strategy and funding requirement to ensure ongoing reliability and quality of service delivery for all airport users, in accordance with Board expectations.



## **Asset Management Framework, JCBU National Water Company, Saudi Arabia**

AECOM was engaged to develop an Asset Management Framework for Jeddah City Business Unit (JCBU) of the National Water Company, Saudi Arabia. This followed on from the Asset Maintenance Policies and Maintenance Strategy manuals also completed by AECOM in 2013. JCBU's vision is to achieve world class asset management practice and wished to define what this meant for the company and what needed to be done to achieve it. The Asset Management Framework that AECOM developed is

aligned with the requirements of ISO 55001: 2014 Asset Management System and the International Infrastructure Management Manual (IIMM), which AECOM co-authored. Some of the key project tasks included an asset management gap analysis, development of a five year implementation plan and the delivery of asset management training to JCBU staff.





### **San Francisco Public Utilities Commission Water System Improvement Program**

AECOM provided program management services for the system delivering water to San Francisco, including the development of asset management policy and strategy. The San Francisco Public Utilities Commission's (SFPUC's) water system improvement program (WSIP) is a 12-year, \$4.6-billion capital improvement program to improve the reliability of the San Francisco water supply system. AECOM analyzed the hazards, vulnerability, and risks for SFPUC's water assets including more than 100 facilities, including treatment plants, pump stations, pipelines, and tunnels. In addition, AECOM developed Level of Service criteria that capture the overall program objectives and numerical target levels. Analytical tools were created to measure system performance against the Level of

Service criteria. AECOM developed high/medium/low alternative Level of Service targets and associated project packages required to meet each option. Decision-making support included prioritization based on risk and cost/benefit. AECOM evaluated the contribution of each proposed project towards meeting the Level of Service targets. WSIP is the largest program undertaken by SFPUC, and significant training, support, and organizational change was required to achieve success. AECOM's program management approach supported this multi-regional organization, to ensure consistency in implementation of program-wide policies and procedures.



## About AECOM

AECOM is the world's premier infrastructure firm, delivering professional services throughout the project lifecycle — from planning, design and engineering to consulting and construction management. We partner with our clients in the public and private sectors to solve their most complex challenges and build legacies for generations to come. On projects spanning transportation, buildings, water, governments, energy and the environment, our teams are driven by a common purpose to deliver a better world. AECOM is a *Fortune 500* firm with revenue of approximately \$20.2 billion during fiscal year 2019. See how we deliver what others can only imagine at [aecom.com](http://aecom.com) and [@AECOM](https://twitter.com/AECOM).