

Bexar Regional Watershed Management Governance and Technologies

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Background

In October, 1998 and July, 2002, the San Antonio area was deluged by record amounts of rain, resulting in flooding that caused in excess of \$1 billion in damage. Following these two events, government leaders united in an effort to provide improved flood control, storm water management and water quality. In 2003, the Bexar County Commissioners Court, the City of San Antonio and the San Antonio River Authority (SARA) created an interlocal agreement to form the Bexar Regional Watershed Management (BRWM) partnership. Since the initial formation of the partnership, 19 suburban cities have joined to expand the collaboration and help address flood issues throughout Bexar County.

Governance

Organizational oversight is provided by the Committee of Seven, which includes two representatives each from San Antonio City Council, Bexar County Commissioners Court, and the SARA Board of Directors, and one elected official representing the participating suburban cities. Daily direction and leadership for BRWM comes from the Management Committee, which is comprised of the City of San Antonio's Director of Public Works, Bexar County's Executive Director of Infrastructure Services, SARA's General Manager and one representative from participating suburban cities. A 15-member public participation group, known as the Watershed Improvement Advisory Committee, was created to advise the Management Committee. Members represent each of the five Bexar County watersheds and are appointed by the governing boards of the City of San Antonio, Bexar County and SARA.

The goals of BRWM are:

- Improve the quality of life for citizens by protecting life and property and providing for safe transportation during heavy rain and flood events by effectively allocating manpower and resources.
- Address water quality issues collaboratively, rather than individually.
- Utilize updated technology to improve flood analysis and warning.
- Provide information and education about flooding, water quality issues and flood insurance.
- Raise awareness of flood control and water quality projects and programs.

Water Quality

BRWM takes a comprehensive view of both water quality and water quantity. An abundant supply of clean water affects not only public health, but entire ecosystems as well. Water quality, wastewater effluent quality, habitat conditions and fish community composition together reflect the health of our water.

As part of its water quality focus in the San Antonio River Basin, BRWM has developed a basin-wide Watershed Protection Plan (WPP). In an effort to enhance the San Antonio River Improvements Project and improve and protect water quality throughout the Planning Reach, the WPP is serving as a guide to address non-point source pollution. The overall water quality goal of the WPP is to reduce bacteria levels so that the uppermost reach of the Upper San Antonio River is compliant with State Water Quality Stream Standards.

Capital Improvement Projects

One of the purposes of BRWM is to create a regional capital improvement project (CIP) program based upon the dynamics of watershed hydraulics and hydrology and to encourage public participation in the program so that it meets the needs of the Bexar County community. The BRWM interlocal agreement commits the partners to a collaborative and cooperative approach to meet the needs of the service area; however, it recognizes that each individual jurisdiction has specific constituencies, regulatory and policy-making authorities. As such, BRWM partners will be responsible for funding CIPs that fall within their jurisdiction.

To qualify as a regional CIP, flood drainage from 1.5 square miles or greater must flow into the area immediately above stream of the potential CIP. The types of regional CIPs being technically evaluated by BRWM include:

- Low Water Crossing – A low-lying roadway that is subject to flooding during rain events.
- Natural Waterway Conveyance – The process of channeling water in a particular direction or controlling the amount of water flow for the purpose of flood management.
- Buyouts – The purchase of property within an identified flood hazard zone by government agencies for the purpose of protecting lives and property.
- Regional Storm Water Detention Facilities – Structures such as dams, levees, reservoirs and floodways that are designed to detain water or retard water flow.
- Stormwater Outfall – A place where a sewer, drain, or stream discharges runoff water from storms into receiving waters.

New Technologies for Water Quality and Water Quantity Models

SARA's role in this regional partnership is to develop hydraulic, hydrologic and water quality models tied to a geographic information system (GIS). SARA maintains these models, and associated geographic data and makes it accessible for use by all entities. The models are valuable tools used by the participating jurisdictions to make decisions regarding flood mitigation planning; capital project prioritization; flood plain management (including assessing and mitigating the impact of development); flood alert system development; and other issues related to the management of flood and storm waters throughout all watersheds in the San Antonio River Basin.

These models through the use of GIS are dynamic and easily updated to reflect new development, change of contours, or land use changes. This will allow SARA and its partners to keep flood maps current, and to better manage the floodplains. Only in the last few years has it become practical to develop watershed modeling systems that are fully integrated with GIS for data management, modeling and visualization. SARA's Regional Watershed Modeling System (RWMS) effectively brings watershed data and models into a single GIS data management system.

By creating uniform tools, techniques and guidelines for use among and between all governmental entities, flood control, storm water and floodplain management decisions can be based upon sound science, reliable data and uniform standards and criteria. The participants in the ILA clearly articulated their need and desire for a computer database system that would assist them with the management of their existing hydrologic and hydraulic models for both water quantity and water quality. The RWMS provides a comprehensive regional watershed management system that will act as a single repository of spatial and modeling data to be used by all participants. Before the agreement, each of these entities managed their own data and models with varying degrees of sophistication and limited cooperation. The RWMS will provide one single data repository and management system that can be used to assist the participants with their individual data needs.

For more information please visit the BRWM website for more information at www.BexarFloodFacts.org.