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Practices Advancing Watershed Sustainability

POSITION STATEMENT

The San Antonio River Authority (SARA) promotes sustainable land development practices that minimize increases in the volume and velocity of stormwater runoff, and protect or improve the ecological functions of the watershed. SARA is committed to advancing sustainable development practices throughout the San Antonio River basin that balance costs, environmental protection and quality of life interests to improve and protect the health of our creeks and rivers today and tomorrow.

IMPORTANCE TO THE SAN ANTONIO RIVER WATERSHED

Sustainable projects and efforts advanced by SARA strive to strengthen the compatibility between environmental and human uses within the watershed. SARA supports continued economic growth and vitality of the basin and recognizes that sustainable practices and projects can balance cost and enhance the future health of our creeks and rivers. SARA aims to advance sustainable development practices that will provide a return on investment in terms of safety, clean water, and economic opportunity.

In the past, infrastructure was built to direct stormwater runoff away from development as quickly as possible by carrying it untreated through storm drain systems to creeks and rivers. With increased urbanization, the conversion of natural lands to impervious cover has greatly diminished the infiltration and transpiration benefits formerly provided by natural soils and vegetation. This is especially problematic in urban areas during small rain events where the high concentration of “first flush” pollutants can reduce a stream’s dissolved oxygen resulting in fish kills, and increase concentrations of other contaminants in sediment. Data from SARA water quality monitoring indicates that stormwater runoff is the greatest threat to stream health. During storm events, rainwater runoff picks up bacteria, hydrocarbons, sediment, fertilizers, heat and other contaminants as it flows across yards, fields, sidewalks, parking lots, streets and other impervious cover. Impervious cover also increases the volume and velocity of stormwater. Ensuring the sustainability of our creeks and rivers and the bays and estuaries into which they flow involves reducing direct runoff by capitalizing on the land’s natural ability to filter pollutants or by installing sustainable engineered systems that mimic the natural processes.

SUSTAINABLE DEVELOPMENT PRACTICES

In the context of watershed management, SARA defines sustainability as the optimization of land development through practices and behaviors that balance environmental quality, economics, and quality of life. The sustainable development practices that SARA promotes

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includes low impact development (LID) techniques, green infrastructure, conservation development and natural channel design.

LID practices manage runoff as close to the source as possible through the use of techniques such as rain gardens, bioswales, pervious pavement and other methods. LID practices filter, infiltrate and/or store pollutants through vegetation, cisterns or permeable surfaces before stormwater is directed to a stormwater collection system. LID is very effective in reducing the harmful impact of “first flush” contaminants that are highly concentrated, particularly during small rain events.

Green Infrastructure is an interconnected network of functional green spaces and natural ecosystems such as a greenbelt or buffer zone. Directing stormwater runoff through these networks allows them to perform their natural ecological functions of slowing, cleaning and even storing the runoff. Conservation development strives to preserve the natural elements of a larger site by clustering development and protecting the site’s natural character and function to the greatest extent feasible. Natural channel design (NCD) is an approach that re-establishes a self-sustaining stream system that provides water conveyance, sediment transport and ecological function. NCD results in healthier restored streams by providing erosion control and improving water quality, stormwater storage and aquatic and riparian habitat.

ACTIVE PROJECTS AND PROGRAMS

SARA is leading by example through its advocacy, funding and piloting of these practices within the watershed. SARA developed an LID technical design guidance manual tailored to the San Antonio region to assist designers and developers in implementing LID practices. SARA, working with the City of San Antonio, identified additional opportunities to incorporate LID techniques into the City of San Antonio’s Unified Development Code (UDC). The City of San Antonio’s UDC now mandates LID on RIO District properties abutting the river, and elsewhere in the city and in its extraterritorial jurisdiction LID is a voluntary option. To further incentivize LID practices and to help educate our communities, SARA has created an LID rebate and school grant program. SARA also created an LID training program for the construction inspection and maintenance of LID stormwater infrastructure to further educate the development and public sector professions. SARA conducted a sustainability audit of its own facilities to determine the agency’s stormwater footprint and retrofitted SARA properties with LID techniques to reduce this footprint. The use of techniques on SARA’s own sites has provided an opportunity to gather important water quality data on the effectiveness of sustainable practices. Exploring the larger application of sustainable practices is a focus of SARA-funded watershed master plans currently underway. Under SARA’s technical leadership, master plans are recommending the use of LID, Green Infrastructure, Conservation Development and NCD as alternates to traditional infrastructure in the management of water quantity and quality.

SARA is also a pioneer in NCD in our area. The agency has prepared a NCD Protocol that contains design guidelines for consultants and partners to aid in the implementation of NCD projects. SARA completed an NCD pilot project in northeast Bexar County and is the project manager for a City of San Antonio 2017 bond project implementing NCD on Panther Springs Creek.

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