

05 - NATURAL RESOURCES



“The nation behaves well if it treats its natural resources as assets which it must turn over to the next generation increased, and not impaired, in value.”

- Theodore Roosevelt

The Benefits of Greenspace

An often overlooked component of a city’s parks and recreation system is the undeveloped green space. This green space serves a variety of important uses including nature-based recreation such as bird-watching, hiking, exploring, rock finding, fishing and mountain biking, and much more.

In park planning for the future, it is important to capture and preserve as much natural space and maintain open greenspace as the City continues to grow and develop over time. In addition to preserving natural green space, the City should consider measures for conservation of natural resources with all future design and development of park facilities. Key ecosystem services include the following:

- Water Conservation
- Energy Conservation
- Stormwater Management
- Water Quality
- Riparian Protection
- Habitat Preservation
- View Preservation

Low Impact Design Strategies

Balancing Development with Natural Space

In consideration of how to respond to the community’s value of natural space preservation, future development of parks in the community should have a balance of natural space preservation and programmed recreational development. These natural spaces could provide opportunity for trail development and interpretive elements for environmental education. The spaces could also provide another opportunity to partner with local schools and other local organizations for other educational opportunities regarding natural preservation.

Low Impact Design (LID)

In a world of ever-decreasing natural resources and increasing development, it becomes important for the City to consider and adopt Low Impact Development (LID) techniques during design and construction of parks and facilities. Issues such as stormwater management, water quality, heat islands, and water conservation can be addressed through sound design principles.

Tools such as bio-retention of stormwater, bio-swales, use of drought-tolerant native plant materials and rainwater harvesting can effectively be implemented in park and facility designs. Use of such tools are rapidly becoming a standard practice, and in some cases a requirement, in communities nationwide.

In addition to being a matter of good environmental stewardship, design and implementation of LID techniques in the City’s projects can also improve the City’s overall rating with the Federal Emergency Management Agency’s (FEMA) Community Rating System. Improving the City’s score with this system can result in discounted insurance rates city-wide.

LED Lighting

An important consideration with the replacement or installation of lighting and both parks and facilities is the use of LED lighting. LED light fixtures use remarkably less energy compared to incandescent bulbs and provide costs savings as well as promote sound environmental stewardship.

Sports facilities stand to benefit the most by converting to LED lighting systems. The sports field lighting company Ephesus reports that owners save on average between 75% and 85% of electrical costs by converting from metal halide systems to LED. In addition to cost, facilities can benefit from reduced shadows, dark spots, and hot spots on the playing surface as well as more directed light and reduced glare.

Rainwater harvesting should be considered during the development of future pavilions. The above example captures rainwater from a pavilion roof top and stores it in a 5,000 tank for use in irrigation of the park landscape.



LED lighting is available for replacement of existing bulbs in parks or as a complete solution when choosing light standards for new facilities. Cost savings over the long-term are significant given the low energy requirement and long lifespan of the bulbs.

Bio-swales, similar to drainage ditches, utilize selected vegetation to filter and slow down stormwater runoff prior to its drainage into the water shed. These bio-swales can be designed using native vegetation adapted to the area, requiring minimal maintenance.



Floodplain Issues

A challenge to development of amenities within existing City parks is that several of the parks are partially within the floodplain and/or regulatory floodway. In the case of the 100-year floodplain, some improvements can't be made without mitigating the potential for flooding through grade changes. Floodplain limitations primarily impact development of structures such as restrooms, pavilions, and other buildings.

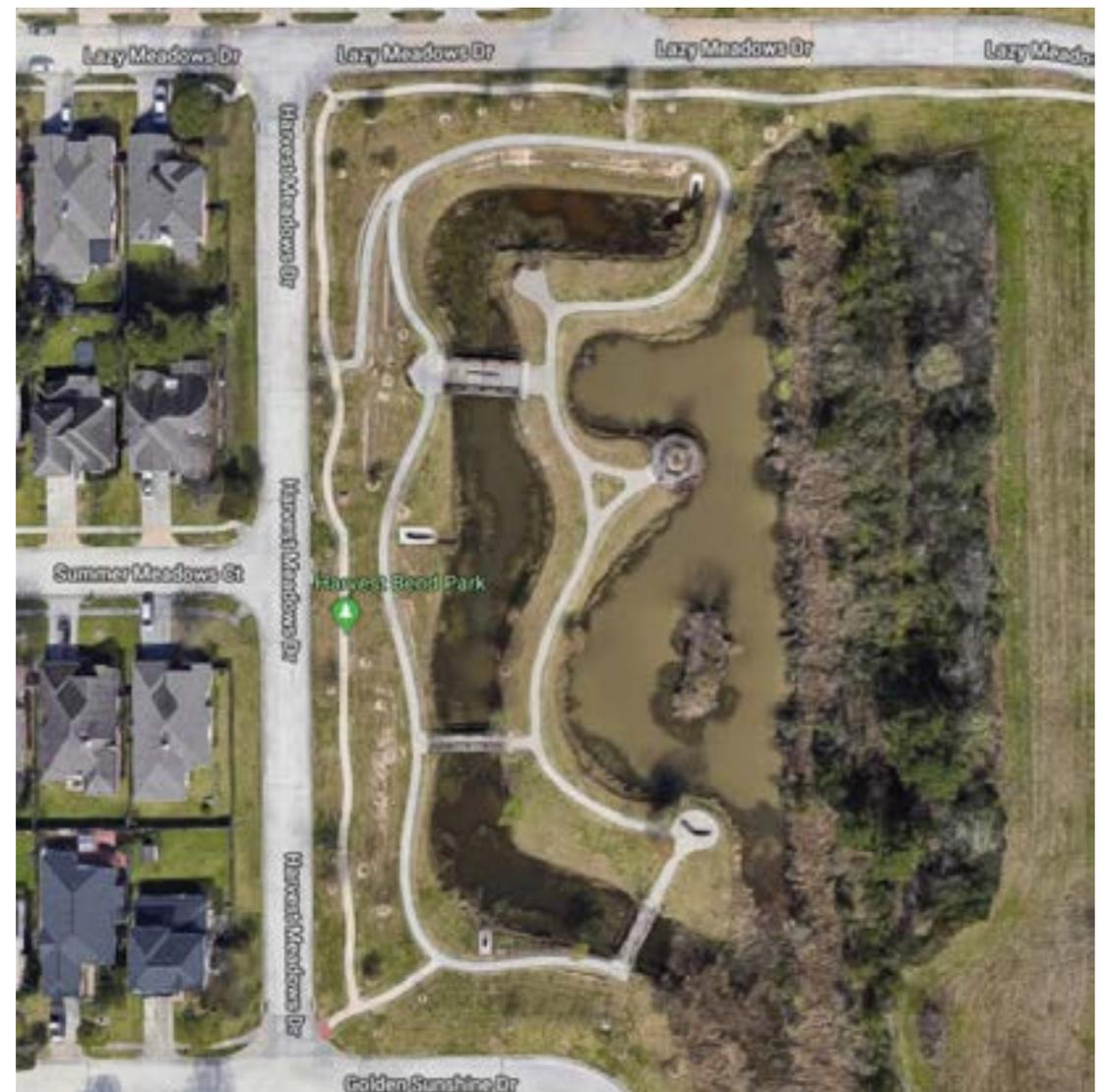
The parks that are impacted by floodplain include Riverbend Park, Brazos Park, Tony Becerra Park, Sunset Park, and the Seabourne Creek Nature Park. Portions of the property that are within the regulatory floodway have special restrictions that effectively prohibit any construction activities. Macario Garcia Park, Travis Park, Harwood Park and the Seabourne Creek Sports Complex are not currently within the 100-year floodplain or floodway.

Tools for managing the impacts of park development on flooding include the use of low-impact surfaces such as gravel and decomposed granite pathways and parking lots, preservation of open space, and even rainwater harvesting. Taking advantage of stormwater detention facilities for new developments is a strategy used by many communities to provide additional athletic practice fields within detention ponds. Overland detention strategies work well for a wide variety of passive and active recreation uses that do not require development of structures.

The detention pond shown at right from the Harvest Bend subdivision in Harris County, Texas includes picnic areas and trails on higher elevations of the site while including permanent retention of water as a fishing amenity and capacity for temporary stormwater storage.



Detention ponds, a requirement for most development in Rosenberg, can provide recreation space for a wide variety of uses. Shown above is a detention pond that also serves as a football field and running tract.



Parks in Flood Hazard Areas

