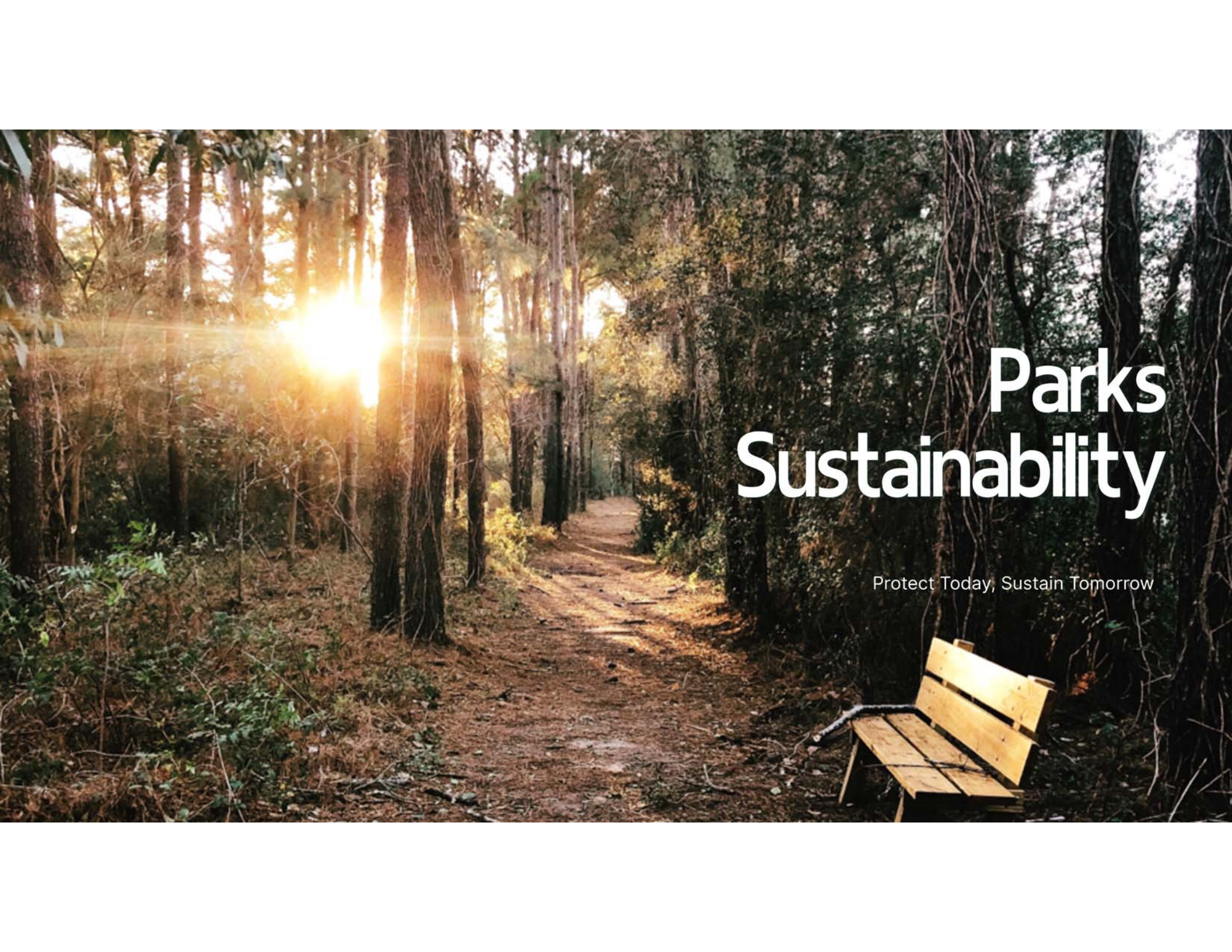


A photograph of a dirt path winding through a forest. Sunlight filters through the trees on the left, creating a bright glow. A wooden bench is in the lower right foreground. The text 'Parks Sustainability' is overlaid on the right side.

Parks Sustainability

Protect Today, Sustain Tomorrow

Sustainability in Sugar Land Parks

- 2,581 acres of parkland (1,404 developed; 1,177 undeveloped)
- Use smart technologies and energy-efficient practices to reduce environmental impact.
- Collaborate with local advocates and volunteers to enhance habitats and promote sustainability.
- Beautify and naturalize park areas to lower maintenance needs and support ecological health.
- Transition select areas to natural landscapes and diversify ecosystems with native and pollinator species.
- Balance environmental health, community well-being, and cost efficiency in park management.
- Advance Sugar Land's broader goals of quality of life, resilience, beauty, and stewardship.



Quality of Life

- Experience the nature in parks



Resilience

- Minimize the impacts of natural disasters
- Reduce recovery costs



Stewardship

- Volunteer events
- Education
- Ownership

LED Lighting

- City Park Fehrle Field pilot project
- Park LED Retrofits



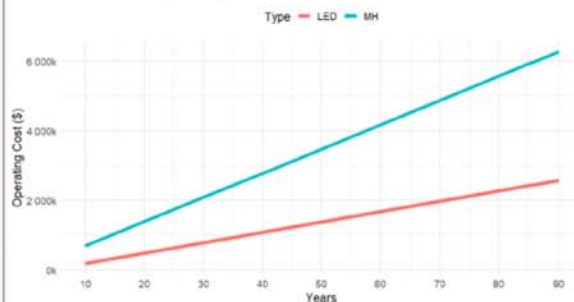
- Data collection
- Data analysis
- Dashboard

PARKS AND RECREATION LIGHT UPGRADE

At a glance: replacing existing metal halide with LED lights will lead to significant financial and intangible benefits.

LED has 70% lower operating costs

All Fields Total Operating Cost Over Time: LED vs MH

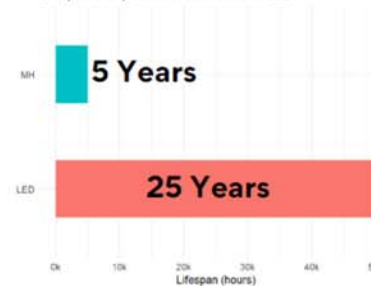


LED can lead to **total operating cost savings of \$906k within 20 years***

*operating cost includes electricity, labor, and parts.
Note the X-Axis starts at year-10

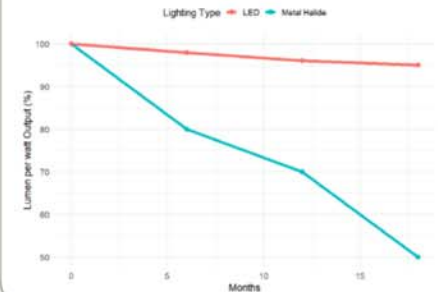
LED has longer lifespan

Lifespan Comparison: Metal Halide vs LED

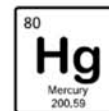


LED maintains brightness

Brightness Comparison of LED vs. Metal Halide Over Time



LED is environmental friendly



- Annual reduction of 288 tons of CO2
- Eliminates mercury contamination
- Reduces electronic waste production

Opportunity Cost

- Cost of replacement will be **34% higher** in 10 years vs now.
- Metal Halide is being phased out, material and parts cost for metal halide will be harder to acquire and become exponentially more expensive.

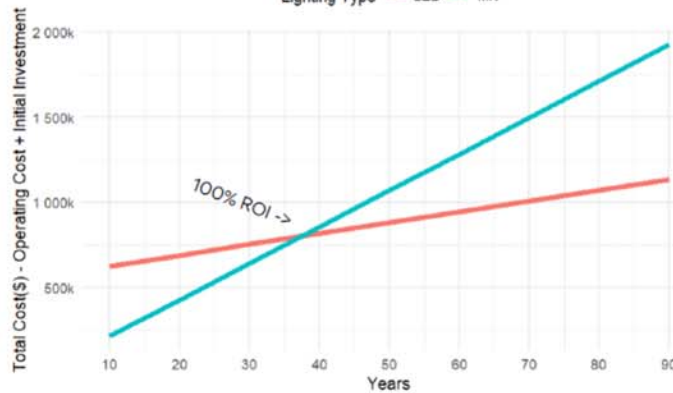
Intangible benefits is worth the initial investment

Soccer Field 1-5 Return on Investment

Lighting Type — LED — MH

Even though it will take some time to realize a 100% return on the initial investment, the overall benefits still make this investment worthwhile.

Soccer field 1-5 as an example ->



- Budget request to SL4B
- CIP project funding in FY 27 and 28

10-Year Summary Table

Field Name	Light Type	Electricity Cost	Labor Cost	Material Cost	Total Cost
City Park	LED	\$42,500	\$0	\$0	\$42,500
City Park	MH	\$74,800	\$46,050	\$52,090	\$172,940
First Colony Park	LED	\$71,750	\$0	\$0	\$71,750
First Colony Park	MH	\$126,080	\$64,470	\$57,020	\$247,570
Lost Creek Park	LED	\$74,020	\$0	\$0	\$74,020
Lost Creek Park	MH	\$130,070	\$64,470	\$60,420	\$254,960

10-Year Total Operating Cost Comparison Chart

■ LED Cost ■ MH Cost

EV Charging Stations



Tree Planting & Urban Forest Management

- Shade, cooling, carbon capture, and storm resilience.
- Annual tree planting with Keep Sugar Land Beautiful
- Tree preservation in project design and construction
- Embrace any opportunities to add trees in the parks with minimal cost
- Department-wide and City-wide arboriculture training



Staff taking arboriculture class with Dr. Watson



Spading Levee District trees

Annual Tree Planting

- Collaboration with Keep Sugar Land Beautiful every year
- Apache Tree Grant Application
- Select the park that has the most needs
- A variety of species that fit the specific locations
- Community volunteer events

20+ Years

Thousands of trees

Thousands of volunteer hours

Increase Tree Surviving Rate



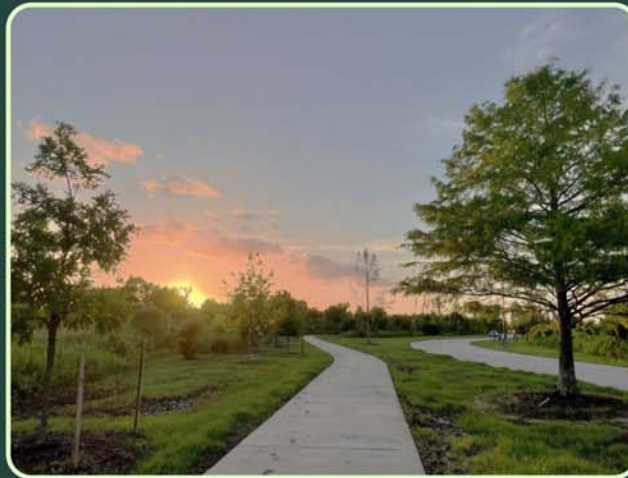
Cullinan Park, November 2024

Spade Trees

- Collaboration with Fort Bend County & Levee District
- Utilize spade trees for new construction
- Retrofit irrigation design to improve the surviving rate of the spade trees



City Park

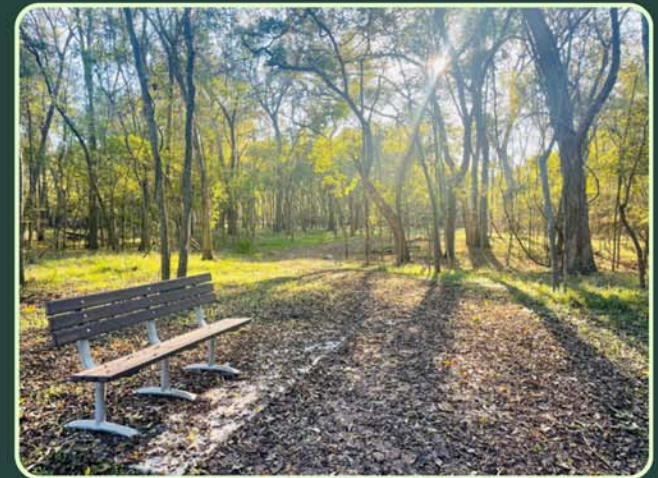
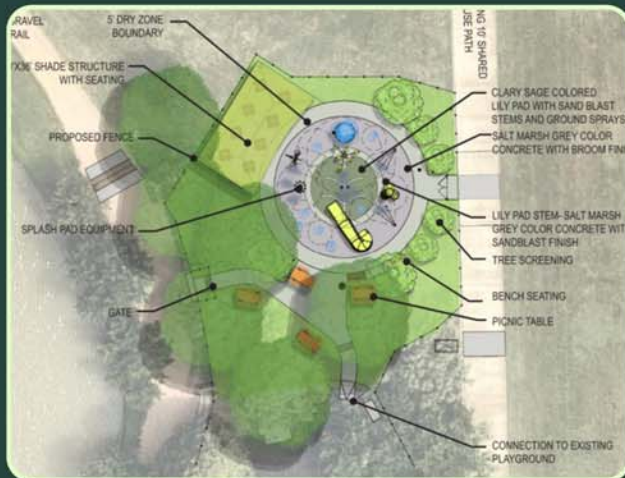


Brazos River Park, 2016 & 2021



Tree Planting Design and Preservation in CIP Projects

- Fully protect the critical root zones and aim for the dripline protection
- Protect trees in clusters
- Plant shade trees at least 9' away from concrete paving
- Requirement and reinforcement of tree protection fence during construction
- Always field verify tree preservation plan
- Utilize pervious surface near tree roots whenever possible



Pollinator Meadows

- Utilize new construction to start pollinator meadows
- Leverage the contributions, expertise, and efforts of Cullinan Park Conservancy, Scouts, Texas Master Naturalists, Keep Sugar Land Beautiful, and other community partners.



Butterfly Garden at Sugar Land Memorial Park

- Transformed a mowed area to a butterfly garden
- Community volunteers have invested hundreds of hours to improve and maintain it
- An outdoor classroom for native planting and environment conservation



Water Conservation

- Smart irrigation systems
- Drought-tolerant plantings
- Rainwater harvesting demonstration
- Collaboration with Utilities Department and Civic Art





RAINWATER HARVESTING A SUSTAINABLE PRACTICE

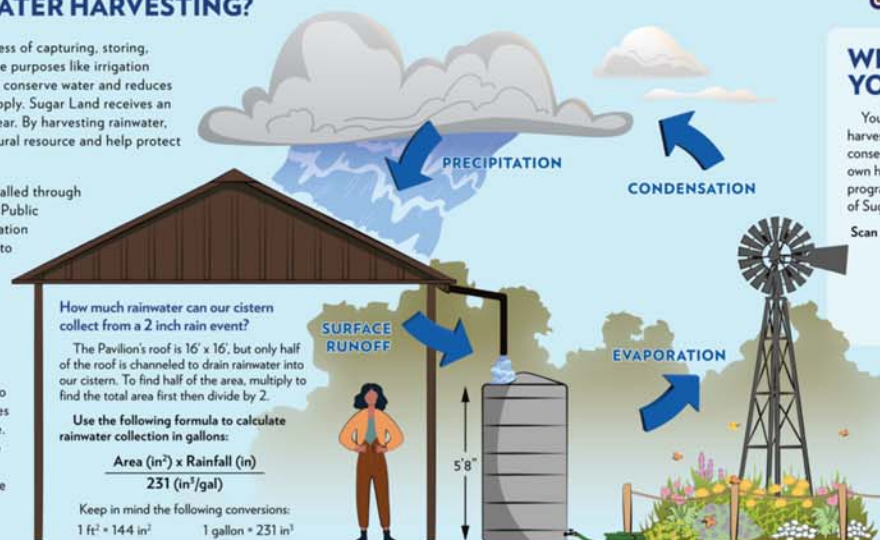


WHAT IS RAINWATER HARVESTING?

Rainwater harvesting is the process of capturing, storing, and using rainwater for non-potable purposes like irrigation and gardening. This practice helps conserve water and reduces reliance on the municipal water supply. Sugar Land receives an average of 50 inches of rain per year. By harvesting rainwater, we can make better use of this natural resource and help protect our environment.

This 300-gallon cistern was installed through a collaboration between the City's Public Works, Utilities and Parks & Recreation Departments. It collects rainwater to support the butterfly garden and is the first of its kind in a Sugar Land park. We hope it inspires more sustainable practices.

Devona Stimpson, an award-winning artist from our Civic Arts Roster, was chosen for her ability to create visually captivating art pieces that celebrate the beauty of nature. Her design features pollinators like bees and butterflies, with flowing ribbons that represent wind and the balance of our ecosystem.



WHAT CAN YOU DO?

You can implement rainwater harvesting and other water conservation efforts at your own home! Our conservation programs are available to all City of Sugar Land residents.

Scan our QR code to learn more.



Key:

$$\frac{16 \text{ ft} \times 16 \text{ ft} \times 256 \text{ ft}^2}{256 \text{ ft}^2} = 128 \text{ ft}^2$$

$$\frac{128 \text{ ft}^2 \times 144 \text{ in}^2}{18,432 \text{ in}^2 \times 2 \text{ in}} = 159.58 \text{ gallons}$$

$$\frac{159.58 \text{ gallons}}{2.31 \text{ (in}^3\text{/gal)}} = 231 \text{ (in}^3\text{/gal)}$$

By tapping into nature's water cycle, you can save money on irrigation while helping to reduce storm water runoff and pollution.

Stormwater Management

Bioswales

Permeable pavement to manage stormwater
Land preservation (wetlands, woodlands, etc.)



Community Engagement & Partnerships

Cullinan Park Conservancy
Keep Sugar Land Beautiful
Texas Master Naturalist
Center Point
Houston Wilderness
Fort Bend Mountain Bike Association
Eagle Scouts



Education

Schools, Texas Master Naturalists and Civic Art groups using parks for environmental education



Partnership

Partnerships with nonprofits and local businesses to sponsor sustainability projects like FBMBA



Volunteer Program

Citizen science initiatives (bird counts, water testing, park improvements, pollinator tracking)
Park cleanup
Scouts to add signage, earthworm towers, fishing line recycle bins, rain barrels, sensory garden, etc.

Benefits

Aligned with Sugar Land's broader goals (quality of life, resilience, beauty, community reputation and stewardship).

- Environmental: cleaner air/water, biodiversity, resilience.
- Social: healthier lifestyles, attractive spaces for residents/visitors.
- Economic: reduced maintenance costs, higher property values, eco-tourism potential, community reputation and donations to the parks



Looking Ahead

- Upcoming initiatives (electric maintenance equipment, solar lighting, expanded wildflower meadows, more volunteer opportunities).
- Challenges to tackle: recycling
- Long-term vision: Parks as green infrastructure for the City.



Reduce

Staff efficiency, reduce water usage, electricity usage, resilient plants, reduce maintenance cost, reduce mowing



Reuse/Repair

Reuse water, repair, harvesting seeds, repainting, retrofitting



Recycle

Trash recycling



Thank you !

Photo Credits:

Cover Photo: *"Alive"* by Heather Lafon
End Photo: *"Picnic"* by Anika Patel
Other Photos: City of Sugar Land