



EXPLORATION GREEN

Case Study: Integrated, Solution-Oriented Urban Green Space

Prepared by Exploration Green Conservancy in collaboration with Texan by Nature



Project Description

In Southeast Houston, dedicated groups are transforming a defunct golf course into an innovative stormwater detention center. Exploration Green provides an integrated, natural solution for catastrophic seasonal flooding, holding up to 500-million gallons of stormwater while also serving as a nature preserve and recreation area. Located near the NASA Johnson Space Center, this 200-acre urban green space provides the community with countless opportunities to explore, offering 40 acres of both wetlands and permanent lakes providing a home to over 1,000 native species.

Exploration Green is a joint project of The Exploration Green Conservancy (EGC) and Clear Lake City Water Authority. EGC is a volunteer-driven nonprofit dedicated to the protection and enhancement of Exploration Green – a permanently-protected, 200-acre green space for conservation, recreation, and flood mitigation in Southeast Houston.

Highlights

- Urban green space takes many forms, such as community gardens, community forests, green roofs, wetlands, and green schoolyards
- Ecosystem services provided by urban green space include carbon sequestration, pollution reduction, cooler temperatures, stormwater mitigation, water purification, groundwater replenishment, and restoration of native habitat
- Beyond environmental benefits, green space encourages physical activity, supports psychological well-being, and increases property values for nearby residents.
- Nature-based solutions provided by urban green space help to build environmental resilience and integrity
- Exploration Green has provided critical ecosystem services tailored to regional needs, including flood mitigation and native wildlife habitat restoration
- Exploration Green presents a model example of a collaboratively-designed and community-executed urban green space, solving a myriad of local issues, ranging from environmental to economic
- The partially completed project protected at least 150 homes during Hurricane Harvey and completely mitigated flooding during Imelda. When complete, the project will protect over 200 area homes and businesses during a 15+ inch rain event

Project Impact Numbers

Community:

- 500-million-gallons of stormwater detention
- 1,000 community volunteers donating 20,000+ hours (*current total as of August 2021*)
- Recreation and education for more than 500,000 individuals in Southeast Houston
- 6 miles of paved trails
- 2 athletic practice fields

Economic:

- \$300 million saved from flood damages caused by all 8+ inches rainfall in a 15-year period
- \$120 million increase in property values for the community

Conservation:

- 200-acres of urban greenspace
- 150,000 wetland plants providing stormwater filtration and carbon sequestration
- 40-acres of both wetlands and permanent lakes
- 5,000 native trees
- 1,000+ native insects, plants, and wildlife species

Model Expansion Statement

Exploration Green Conservancy has extensive experience, expertise, and great enthusiasm for groups that may aspire to create an urban green space in their community. This project is worthy of replication, and EGC looks forward to sharing knowledge, best practices, and lessons learned with others aiming to execute a similar project, whether it be for a nature-based flood mitigation space, an urban wildlife habitat, or anything in between.

Contact Information

Contact Texan by Nature at info@texanbynature.org and 512-284-7482 or Exploration Green Conservancy at explorationgreen@gmail.com if you would like to support EGC, volunteer, provide resources or connections, are interested in partnering, or would like to learn more.

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Introduction

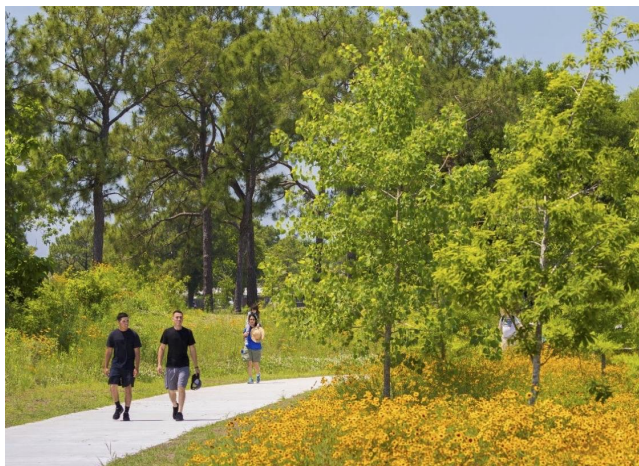
This case study is a result and deliverable of Exploration Green Conservancy's involvement in Texan by Nature's [Conservation Wrangler](#) program. The Exploration Green Conservancy was selected as a Texan by Nature Conservation Wrangler in 2020 based on the program's positive impact to people, prosperity, and natural resources.

Urban Green Space

In highly industrialized areas across Texas and the United States, mass development has rendered once beneficial urban infrastructure obsolete. Many opportunities for creating urban green space exist through repurposing underutilized urban infrastructure. For example, dedicated groups in Houston, Texas, are **transforming a defunct golf course into an integrated stormwater detention center, recreation space, and conservation area**. This project, **Exploration Green**, provides critical ecosystem services tailored to this region's needs, receiving an outpouring of community support.

Underutilized urban infrastructure, such as neglected neighborhood parks or former golf courses, present an opportunity for reclamation into urban green space for conservation, native habitat, and community resilience. Urban green space can take many forms, including community gardens, community forests, green roofs, wetlands, and green schoolyards. Urban green spaces provide nearby communities a wide range of benefits through additional ecosystem services, encouraging positive health outcomes, and promoting economic development.

Ecosystem services provided by urban green space strengthen both ecological and human community resilience. These ecosystem services can include carbon sequestration, pollution reduction, cooler temperatures, stormwater mitigation, water purification, groundwater replenishment, and restoration of native habitat. Green space also helps its nearby residents by encouraging physical activity, supporting psychological well-being, and increasing property values.



Local community members enjoying Exploration Green's paved trails (above)

History

Texas Flooding

Torrential rainfalls are characteristic of not only the Houston-area, but Texas at large, as it receives much of its annual rainfall in a few torrential storms. Texas holds six of the 12 world record rainfall rates in 24 hours or less (Roth). These heavy storms often lead to mass flooding in more developed areas, with the Greater-Houston area particularly prone to flooding due to 40+ years of residential and commercial development, much of which predates modern drainage infrastructure. This area has endured eight 6 to 12-inch rains, five 12 to 25-inch rains, and one 50+ inch rain (Harvey) since 1979. Harvey struck Houston and its surrounding areas in 2017, causing flood damage to over 200,000 homes and businesses and costing an estimated \$125 billion in damages to property and infrastructure (Huber). These frequent flood events require community-driven efforts to build stormwater resilience. Through Exploration Green, a Southeast-Houston community uncovered a unique solution to mitigate recurring flooding.



Flooding during a heavy rain in 2005, one block away from Exploration Green's Phase 5 (above)

Exploration Green

Exploration Green presents a model example of a collaboratively-designed and community-executed urban green space, solving a myriad of local issues, ranging from environmental to economic. Two primary partners lead this project, **Clear Lake City Water Authority (CLCWA)** and **Exploration Green Conservancy (EGC)**. Near NASA's Johnson Space Center, Exploration Green is in Clear Lake, TX located in the Bay Area of Southeast Houston. Clear Lake encompasses 13 different communities and over 500,000 people. The neighborhood that contains Exploration Green was one of the first residential developments created for employees of NASA. This neighborhood included a privately-owned golf course that eventually fell into disrepair. With a vision to create an innovative stormwater detention center, fueled

by years of hydrological research into feasible stormwater solutions CLCWA purchased the defunct Clear Lake Golf Course property in 2011.

In addition to stormwater detention, the CLCWA aspired to use the property as a domain for community enjoyment. Following the purchase, CLCWA held numerous community-based town hall meetings focused on generating ideas for the property. As a result, the community united around a cause – to restore the formerly neglected golf course into a more natural state. Fueled by the outpour of community support, CLCWA shortened the five-phase plan from the original 15 years to only 4 years. The plan included transforming the obsolete golf course into a green space, with wetland habitat and five lakes that serve as detention basins for excess stormwater. Subsequently, Exploration Green Conservancy formed as a 501(c)3 non-profit organization to oversee the habitat and recreation aspects of the project.



Images of aging infrastructure, bridge (above left) and restroom (above right), at the defunct golf course



Town Hall with Chairman of the EGC Board, Frank Weary, discussing Exploration Green (above)



Aerial image of Exploration Green's Phase One (above)



Exploration Green Concept Map



Volunteers planting trees at Exploration Green (above)



Before Hurricane Harvey (above left), during Hurricane Harvey (above right)



Black-bellied Whistling-Ducks enjoying Exploration Green's wildlife habitat (left), Volunteers planting wetland plants at Exploration Green (right)

Model Expansion Statement

EGC and CLCWA often receive questions concerning project replication. The following steps may be beneficial to groups aiming to create urban green space in their community, including best practices and lessons learned.

Step One: Project Initiation

1. Research
2. Business Case
3. Project Framework

Research

- Research your area, and work to uncover a regional need.
- Deeply consider the reason for the project and determine if it is needed and note the desired impacts.
- Research local requirements and beneficial ecosystem services to determine what kind of urban green space will be most useful for the area.

EGC process: In early 2003, CLCWA and the Clear Lake City Civic League (CLCCL) faced an urgent need for intervention after observing increased flooding, high water levels in the local waterways after storms, and decreased property values. The CLCWA, responsible for routing stormwater into the County-owned ditches and streams, started looking for solutions.

Business Case

- Define the project, explain why the project is necessary and how it will succeed.
- Once you've uncovered a regional void, create a project proposal, including a justification that details the problem and this project's solution and how it is uniquely equipped to solve it.
- Capture big-picture project considerations (below). For project justification, studies by local scientists or independent experts may be needed, such as hydrologists or wildlife biologists.

Example Project Considerations:

- Historical land use
- Local demographics
- Place within broader conservation
- Community acceptance
- Land requirements
- Local ordinances
- Ecological framework
- Recurring adverse weather events (ex. flooding) for the prospective area

In Exploration Green's case, the prime consideration for a minimum-cost stormwater detention facility was the nearby drainage routes and accessible locations to capture drainage before it reached the stream or river. CLCWA feared that the possible prospective development on the golf course land would only worsen neighborhood floods. Thus, they engaged prominent hydrology experts at nearby Rice University to assess the region's flood risk and present recommendations. The hydrologists developed two different studies, both of which concluded that the defunct golf course should be purchased and transformed for stormwater detention, revealing that a significant portion of the Clear Lake City development already drained through the golf course, reducing construction costs.

Project Framework

Outline how the project will be structured and executed. During this phase you will want to identify a location, talk to governing authorities, develop a team, build initial community awareness and support, and begin a project checklist.

Begin a Project Checklist

When building a framework, make sure to create a project checklist of necessary items and project goals, including detailed land requirements, prospective partners and stakeholders, governing policies and services, possible funding sources, desired impacts, etc. Remember to continually keep track of actions taken and goals set during the initiation phase. Determine a system to document shared progress throughout the project.

Identify a Location

After researching a prospective area, identify the project location, and obtain a title. For stormwater detention, the project location should come from hydrology studies coupled with community acceptance considerations. For a nature reserve, community acceptance, wildlife migration routes, and property access will be important considerations. Acquiring the land title ranges in difficulty. If the current owner is willing to sell or donate, the process is straightforward. If the owner has alternate plans for the land, the purchase can take years (seven years for EG). If a land purchase is required, having the resources to pay for the property may also be a hurdle. A connection with a governing authority that has tax or bond revenue available is the easiest way to secure funding for this step. Additional arrangements are also possible, like grants.

Team

Find the people with the right skills and experience to execute the project. For example, to help with creating a plan, the CLCWA engaged an architecture firm called the SWA Group. The SWA Group provided expertise in facility design and construction, helping to complete the Master Plan in 2013. Historically, stormwater detention basins before 2013 were nothing more than large holes in the ground surrounded by a fence. Exploration Green, however, presented state-of-the-art features that were inspired and driven by the community.

Talk to Governing Authorities

Individual and nonprofit groups will need early funding. Obtaining buy-in from a government authority that is willing to fund initial efforts can transmute an idea into action. In many cases, it may be best to identify a smaller well-funded governmental organization. In particular, a local Municipal Utility District (MUD) can be a prime place to start. Alternatively, it may be possible to form a local flood district, but this will require legislation and approval by local or state authorities. Regardless, approval from local (City, County, etc.) governments is needed, and there may also be flood control or river authorities that need to approve a project if it includes stormwater detention. These may be preliminary discussions of a concept, but it may lead to ideas for future funding.

Involve the Community at the Offset

Creating a project concept provides an excellent opportunity to involve the community and build support. For example, EGC conducted town hall meetings where they presented the basic concept and project justification (flood mitigation), then asked for input on ideas and concerns to further develop the project concept. The community input process required significant effort but earned community support for their project.

Step Two: Planning

Create a Roadmap

- Define the Scope
 - Budget, Schedule, Tasks, Deliverables
- Gather Necessary Resources

Define the Scope

The scope involves establishing and documenting all of the work that needs to be done in order to achieve and deliver a project. This process includes capturing specific project goals, deliverables, tasks, costs, as well as a timeline and schedule.

Create Budget, Schedule, Tasks, and Deliverables

As early as possible, work to develop a basic budget, schedule, deliverables, and tasks for implementation. These items may evolve as the project progresses, but it's helpful to have an initial model to work from. Ensure to designate funds for all required items, including amenities, engineering, permit applications, and construction, equipment, tools, signage, labor, utilities, etc. If a government body is involved, they may fund the first steps or the entire project. In a different project without a dedicated Conservancy, another NGO may oversee this portion. Alongside the budget, ensure to make a timeline and list of tasks with a division of work, assigning responsible parties for each item. During the initial scoping, be sure to designate specific project deliverables as well as how to keep track of progress and report on each goal.

Gather Necessary Resources

Engage Corporate Sponsors

Enterprise-level corporate sponsors may initially be difficult to develop relationships with, so it's advantageous to start small. Individual and local business connections help build awareness and create additional community support. Developing a wish-list of fundable items for donors can also enhance contributions. Regularly organized and hosted community events present additional sponsorship opportunities for local businesses. If a local business subsidiary supports a project, then there is an opportunity to leverage that relationship when applying for larger grants from their parent firm. Recognizing a corporate sponsor's name and logo at your events and on your annual report, website, social media or other organizational collateral is another way to provide supporters with additional recognition.

Consider a Conservation Easement

A Conservation Easement is a beneficial tool to protect the land from future development. This legal agreement functions to permanently restrict the use or development of the property to protect its conservation values. This agreement is generally taken "in perpetuity" and specifies permitted activities and uses on the property. The landowner (traditionally the entity responsible for the project) retains title to the land, but the holder of the easement enforces the restrictions of the easement. The holders of these agreements are generally conservation organizations. Typically, they hold easement responsibilities for several projects. They perform periodic inspections of the site to ensure that all activities are in line with the restrictions. Although the easement holder and the landowner may agree to minor changes in the agreement over time, the primary mission of the holder is to assure the basic principles outlined in the agreement are met.

Step Three: Identify Partners

Identify Partners

- Partner Roles and Impacts
- Exploration Green's Partners

Partner Roles and Impacts

Continually search for other groups that will offer a mutually beneficial partnership, whether **advisory** or for **funding**. Partnerships provide an on-going relationship to share experience, build credibility, and provide future direction. While scoping the initial project, it's advantageous to identify partners that may help with the design and planning, including architecture and engineering firms.

Preeminent partners will often include a government body that is sponsoring the project, the nonprofit supporting the project, and the holder of the conservation easement (if applicable). Beyond that, partners may be groups that provide funding, such as local government bodies, major grant providers, corporations, or local small businesses. Others may include partners that provide "in-kind" donations,

such as materials, trees, or wetland plants, or partners that generate volunteers or expertise, such as garden clubs or master naturalists. Partnerships with other local organizations, such as church groups, scout groups, and civic clubs, are an effective way to help build community support. Look for local nonprofit and educational organizations that specialize in related activities.

In EGC's case, a local arbor and tree planting organization, Trees for Houston, came forward to donate 5,000 new trees. The Texas A&M AgriLife Extension Service also helped through their Coastal Watershed Partners program, sponsoring a grant to supply wetland plants, construct and operate a nursery, and manage the volunteer effort to create the wetlands. These partnerships helped to maintain community involvement and volunteer recruitment.

Exploration Green's Partners

The CLCWA and Exploration Green Conservancy have numerous instrumental partners that helped this project achieve success. Developing strong partnerships with individuals and organizations of all sizes and locales are essential in making the project work.

Advisory Partners:

Alongside Exploration Green Conservancy, Clear Lake City Water Authority formed an expert team of award-winning partners to create Exploration Green. The organizations below primarily contributed their knowledge and expertise to the creation of a state-of-the-art, multi-use urban green space.

- **Texas Parks and Wildlife** serves as both an advisory partner and a major funder of Exploration Green. As of late 2020, they've granted \$1,000,000, and provided funding and advice on two swift towers.
- **Galveston Bay Foundation** helped to establish the Conservation Easement to indefinitely protect the land. They have also assisted the Conservancy in grant writing.
- **Trees for Houston** provides most of the trees and assistance in tree planting.
- **SWA Group** designed and developed the Master Plan.
- **Lockwood, Andrews, and Newnam, Inc** serves as the CLCWA's engineering contractor. LAN engineers bring the SWA conceptual Master Plan to life.
- **The Community Watershed Partners** through Texas A&M AgriLife Extension provided the initial wetland plants, as well as provided a coordinator for this effort to guide the volunteers.
- **Texas Master Naturalists'** Gulf Coast and Galveston Bay Area Chapters provided Exploration Green with volunteers, advice, and leadership.
- **Texan by Nature** recognized Exploration Green as a 2020 Conservation Wrangler. Through which, they provide tailored-aid and project management to Exploration Green Conservancy.

Funding Partners:

- The **Construction partner**, Clear Lake City Water Authority, has funded the excavation of the detention lakes.
- **Grant partners** (below) have funded the facilities such as hike and bike trails, irrigation systems, and park-like amenities.

- *City of Houston, Harris County, The Texas Coastal Watershed Program, Texas General Land Office, NOAA, H-E-B, The Environmental Fund of Texas, Galveston Bay Estuary Program, and Sea Grant Texas at Texas A&M University.*
- **Local business sponsors** have supported EG events, from funding to donating their goods or services.
 - *Buck's Pizza Clear Lake, Phillips 66, Buti Yoga Galveston, Chris Pulse/Realty Preferred Clear Lake, Community Management Solutions, Inc., Crown Trophy of Seabrook, Harris County Constables Precinct 8, JSC FCU, Lindsay & MaGruder Orthodontics, Rasa Yoga, Ritter's Food Truck, Shepherd's Mix Food Bar, Space City Rotary, Susan Jackson/Coldwell Banker United Realtor, Thrivent, as well as scout troops and local church groups.*

Community Partners:

Exploration Green formed from the vision of community members and continues to flourish due to their ongoing support. Exploration Green has over **1,000 recurring volunteers** that have donated over **20,000+ hours of their time** (*current total as of August 2021*). Volunteers of all ages and backgrounds help control costs and maintain community support for the project. The Conservancy works to engage volunteers for both planting and land upkeep, but also operational tasks via committees, such as fundraising, outreach, amenities, finance, and events.

Step Four: Identify Funding Sources

Identify Sources of Funding

- Master Grant Writing
- Consider Nonprofit Status
- Exploration Green's Financing

As previously mentioned, identifying a government body to manage and fund portions of your project is preferred. That said, some aspects of the project may be out of scope for the governing body's budget. In this case, it's essential to solicit grants and private donations.

Funding for excavation could alternately come through existing state or federal programs, but the process for getting these funds could slow progress or decrease project control. Grants for amenities can come from many sources, ranging from foundations to corporations to governmental organizations. Initial funding for the Exploration Green trails came from a State-based environmental grant, but the bulk of the funds for trails came from City and county grants.

Master Grant Writing

Once an initial portion of the project is well underway, it becomes easier to attract funds. Initial funding may be more difficult as the project has no measurable success. Developing relationships with individuals that have grant writing experience or involving a professional Grant Writer for the initial efforts can be highly beneficial.

Consider Nonprofit Status

Some grants and most corporate donations require that the receiving organization be a nonprofit, while others may require that the receiving organization be a government body. The nonprofit organization can prepare grant applications for either, with permission from the governing body. Having the two types of organizations working together has distinct advantages.

Forming a 501 (c)(3) nonprofit organization affiliated with the project will help with grant and donation eligibility. This organization then helps collect and shape public opinion and can become the public face of the project. The sponsoring government body may select the initial community leaders for the effort, but the Nonprofit Should be a governing body. The nonprofit will need to prepare governing documents, such as bylaws, policies, and board processes. The standard steps of filing incorporation papers, both local and state, will be followed by application with state and federal (IRS) authorities to be recognized as a section 501 (c)(3) organization. Contributions to this new organization then become tax-deductible.

EGC process: With the Master Plan established, they established Exploration Green Conservancy (EGC), a 501(c)3 nonprofit in 2014, taking over the CLC

CL's duties. The nonprofit status allowed the conservancy to apply for additional grants to fund and operate the desired amenities. Further, the newly established nonprofit status allowed for EGC, CLCWA, and Galveston Bay Foundation to create a conservation easement (more on this below).

Exploration Green's Financing

Funding of Exploration Green is primarily through the CLCWA and Exploration Green Conservancy. At over 95% locally funded, the structure of upkeep was designed by the community to ensure community costs remain low.

Infrastructure: Funding for infrastructure, including engineering and excavation, were provided through bonds issued by CLCWA. Total CLCWA funding is approximately \$40 million. Of the \$40 million total, \$6.25 million went to purchase the golf course, which the CLCWA considers an asset.

Landscape: the Conservancy manages and maintains the nature space with no cost requirement.

- Each Phase will cost about \$6 million.
- Wetland plants and trees total \$2.5 million, provided by Trees for Houston and AgriLife Stormwater Wetlands Program in-kind donations.
- Trails will be \$2 million covered through Harris County Precinct 2, the City of Houston, and TPWD funding supplemented by Coastal Management Program funds.
- Individual, civic club, and local business contributions have provided over \$40,000.
- Volunteer efforts are valued at \$1 million through 2020.
- Approximately \$1.5 million in funding for the Entry Plaza is being sought.

Step Five: Execution

- Project Management
- Grow Community Support

- Build Awareness

Once the roadmap is completed, it's time to start the project. During this step, it is imperative to not only perform project management tasks, including status tracking, capturing KPIs, upholding a division of work, and continuing ongoing documentation, but also work to continually build long-term support and awareness.

Project Management

Having a designated project manager is non-negotiable. The project manager should have a time-bound list of required tasks and deliverables for project execution. All steps for implementation should have owners. The respective task owners should continually share updates at a designated cadence to report key performance indicators. The execution phase heavily relies on careful planning. Meticulous organization during project planning and execution will help to streamline processes, including design, detailed engineering, permit processes, and construction. Successful management also entails keeping close track of the budgets, funding, and securing a bookkeeping system as well as detailed procurement and asset management records in place.

If the existing project partners do not have this expertise, identify an engineering firm with permit experience to help manage the construction. State and federal environmental permits, as well as local city or county permits, are typically required. Using an engineering firm with this expertise results in better control and shorter permit processing times.

Grow Community Support (Ongoing)

Continually finding ways to engage the local community from the outset is key to ongoing support, awareness, and potential funding. Opportunities for engagement include developing a volunteer base for upkeep and implementation, creating a board consisting of nearby residents, hosting volunteer events, encouraging public participation in project design, allowing individuals to join your Conservancy through membership, and offering free education and recreation events.

Hold Public Meetings

Throughout a project, it is advantageous to hold public meetings to keep the community informed on project updates and needs. Ongoing public meetings will build positive recognition, answer questions, and earn greater support.

Develop a Volunteer Base (Ongoing)

Encouraging public participation in the project design and then acquiring committed participation on a conservancy board are the natural first steps in earning community support and engagement. Detailed design, permitting, and construction may take several years to complete. That said - maintaining volunteer participation throughout the project duration requires ongoing efforts. A powerful method to build a volunteer base is to ensure that all volunteer opportunities help them connect to the primary project purpose.

Be creative in identifying opportunities for community volunteers, including hosting special volunteer events throughout different stages of your project. Typical volunteer opportunities might include requesting help to “clean” the property before construction (trash pick-up, undergrowth removal, minor demolition, etc.) or having volunteers participate in limited maintenance efforts. Other special events that can attract large groups of volunteers might include tree or wetland planting days.

Events such as “nursery maintenance days” may start with a few highly motivated individuals; however, these people can attract others to join them in a future volunteer event. For example, Exploration Green invited volunteers to work in their tree and wetland nurseries, volunteer experts from partner organizations taught the volunteers about nursery maintenance and upkeep, and those efforts became self-sustaining. Their primary strategy in attracting volunteers continues to be the opportunity to work and learn in the natural setting.

Example Volunteer Sources:

- Church groups, scout troops, civic clubs, and corporate team building events can all be used as initial sources to build a volunteer base.
- Corporate volunteering events benefit your project as well as their businesses by boosting employee engagement.
- Conservation groups can also be a great source of volunteers, sharing expertise, and training others.
- Note: liability waivers and waivers to allow the use of volunteer pictures are encouraged for all volunteer efforts.

Offer Special Community Events

Continually offer the community opportunities to recreate and learn - special events open to the public are a great way to build local support and acceptance.

- Notable events, such as ground-breaking ceremonies, a grand opening (as a whole, or per section), Earth Day events, and Arbor Day events are event-worthy milestones.
- Other year-round events may include free outdoor recreation or fitness classes, educational tours, Earth Day celebrations, bird watch training, and hosted tours for local businesses and churches.
- Hosting holiday events is also recommended; for example, EGC hosted candlelight tours on Valentine's Day, Halloween trick-or-treats on the trails, and Squawk-Walk (birdwatching) events with the local Audubon Society.
- Consider involving other organizations to co-host or provide event-support, including environmental organizations, small businesses, community groups, and local food vendors. They may want to participate, sponsor, or have a booth at an event.

Build Awareness (Ongoing)

Use the Media

Initial outreach efforts may be limited to press releases about the project concept and public input meetings. Build a contact list of local, statewide, and national media you hope to reach. Create press releases before and after all public meetings and whenever the project passes a major milestone. Press releases to newspapers, radio, and TV stations are helpful, but consistent coverage is competitive and may be difficult to obtain. Social media, like Facebook, LinkedIn, Instagram, and Twitter are crucial in building awareness and engagement with the local community. Another advantage of social media is that you control the timing and initial posting of news. Social media is also a great way to publicize volunteer events, updates, and ongoing efforts. Additionally, utilize free community event calendars, often provided by media outlets, blog sites, universities, and more.

Spread the Word

Create a speakers bureau or outreach committee to build awareness and help with public communications. In-person project presentations can be a very effective method to build interest and support. Local organizations such as civic clubs, garden clubs, retiree clubs, and the chamber of commerce are frequently looking for meeting topics, especially when they tie to improvements for the local area. At first, EGC presentation proposals required more persuasion, but now receive one to two local presentation requests per month and a regional or state-wide request one to two times per year. For a presentation package, using more pictures and fewer words is the most effective and engaging. This approach also allows the presenter to tailor the presentation to different audiences. Upon project progression and success, the speakers bureau may help in spreading the word about the project to spur replication efforts.

Apply for Awards

Recognition for the effectiveness of a project by a third-party reinforces validity and credibility, which helps build more awareness and ultimately support. For awards that require applications, questions are frequently similar to grant applications, so preparing the award application may fall on the grant writer. Commonly, there are awards for planning efforts, conservation efforts, community involvement, design basics, and community uplift. Thus, a project might qualify for a category even early in the project cycle. Since having recognition is in grants and corporate donations, they can be a valuable tool and be personally (and organizationally) gratifying. Don't hesitate to demonstrate the value and contribution of the project in the award application - a successful project deserves recognition!

Exploration Green's Awards

Exploration Green's incredible results are recognized state- and nation-wide. Third-party organizations across the nation have highlighted Exploration Green's innovative practices in planning, architecture, conservation, and more.

- 2013 Mayor's Proud Partner Award from Keep Houston Beautiful
- 2013 Houston-Galveston Area Council (H-GAC) "Planning Award for Parks and Natural Areas"

- 2015 Trees for Houston “Arbor Award”
- 2015 American Society of Landscape Architects Award (to SWA)
- 2016 H-GAC Our Great Region “Connections Award”
- 2018 Mayor’s Proud Partner Award from Keep Houston Beautiful
- 2018 Exploration Green Day Proclamation by Mayor Sylvester Turner
- 2018 Guardian of the Bay from Galveston Bay Foundation
- 2018 Allied World Resilience Award from National Wildlife Federation (NWF)
- 2018 Special Service Award from the Houston Sierra Club
- 2018 Stormwater Management Green Infrastructure (Second Place) from National Association of Flood and Stormwater Management Agencies (NAFSMA)
- 2018 “National Resilience Award” from National Disaster Resilience Conference
- 2018 “Exploration Green! A Case Study in Effective Floodplain Management” from FEMA
- 2019 “Treasure of the Bay” from Texas Master Naturalist Galveston Bay Chapter
- 2019 “Texas Engineering Excellence Award” Gold Medal for Exploration Green Phase 1 from the American Council of Engineering Companies (ACEC) Texas Division
- 2019 “H-GAC Parks and Natural Area On-the-Group Project over \$500K” from Houston-Galveston Area Council (H-GAC)
- 2019 “H-GAC Our Great Region 2040 Excellence Award” from Houston-Galveston Area Council (H-GAC)
- 2019 “People’s Choice Award” from Urban Land Institute
- 2019 Finalist, “Development of Distinction” from Urban Land Institute
- 2020 “Conservation Wrangler” from Texan by Nature

Numerous local and national news publications have featured Exploration Green, including The Washington Post, Texas Tribune, Public Works Magazine, Houston Chronicle, and USA Today.

Step Six: Evaluate your Success

- Capture Data
- EG’s Strategies to Measure Impact and Success
- Exploration Green’s Results & Project Impact Numbers

Capture Data

Data is a valuable resource for all projects - keeping track of relevant and accurate numbers largely contributes to the success and growth of a project. Data capture and reporting will be essential for outreach, project management, and goal creation in addition to helping maximize resource and fund expenditure, attract new funding sources, and identify any project gaps and growth opportunities. Data helps to articulate what impacts a project has when applying for grants or reaching out to corporate individuals and corporate donors. All of these factors combined will work together to increase project impact and enhance efficiency. Measurements should begin at the offset of the project and project leaders should set procedures for measurement in place. Keep track of not only conservation impacts

but also positive impacts on the community and the economy. To ensure comprehensive data management, make sure to involve both internal and external resources.

Examples of Types of Data to Collect:

- Land area impacted (acres, hex acres, sq. miles)
- Species impacted
- Number of native plants
- Economic benefits to the area (property values, jobs created, tourism, recreation)
- Nearby individuals impacted (K12, nearby residents, low-socio-economic groups reached)

EGC's Strategies to Measure Impact and Success:

- To keep track of their data, EGC encourages residents to help with wildlife and native species tracking through mobile applications, such as eBird and iNaturalist.
- The CLCWA keeps track of the wetland's effectiveness.
- Finally, EGC records all planting and habitat data as well as their impacts on the community and local economy through capturing flood mitigation savings and increases in property values.
- All three work in concert to achieve extensive impact measurement.

EGC process: Thanks to data capture and reporting, EG's initial 15-year master plan timespan was significantly reduced. The initial timespan aimed to reduce the impact on the neighborhood and maintain tax levels, helping to increase public support. The plan included five multi-year phases for each of the 100-million-gallon detention lakes. The first detention lake in Phase 1 was under construction as Hurricane Harvey hit. Although it was unfinished, the detention basin held an estimated 100 million gallons of water back, fully mitigating neighborhood flooding for over 150 homes. CLCWA was able to utilize this data to adapt the initial master plan and move the completion goal up, developing a new plan to complete the project within five years.

Exploration Green's Results & Project Impact Numbers

Impact

Exploration Green offers 200-acres of urban green space in Southeast-Houston, contributing numerous conservation impacts.

- 150,000 wetland plants and 5,000 native trees
- 40 acres of both permanent lakes and wetlands
- 1,000+ unique native plant and wildlife species.
- Ecosystem services provided by Exploration Green include carbon sequestration, cooler temperatures, pollution control, and water filtration.

In addition to conservation impacts, Exploration Green produces a myriad of community benefits, including stormwater mitigation, recreation, and education opportunities to the surrounding community. Once completed, this project's 500-million-gallons of stormwater detention will save local homes and

businesses approximately \$300 million in total flood damages from rains occurring in each 15-year period. The community members have seen a **\$120 million increase in property values**.

Step Seven: Project Close

Once the fieldwork is over and deliverables are met, the initial project may be over, but the data capture, reporting, and long term impacts should continue. Upon the project close, it may be helpful to have a stakeholder and partner debrief to capture project effectiveness and any future goals. Creating and distributing a final report highlighting project achievements is imperative. Remember to write, thank, recognize, and keep in touch with all supporters, large and small.

Exploration Green: Current Progress

Though Exploration Green has not yet reached its close (as of early 2021), they've made impressive progress. Thus far, each phase has a different shape and layout, surrounded by major streets. All sections include 100 million gallons of stormwater detention, lakes, wetlands, forestry, pollinator habitat, and trails. Phase 1 and 2 construction are completed as of early 2020, adding more plants and trees in all sections through 2022. Phase 3A and 4 are under construction as of early 2021, with Phase 5 and the northern portion of Phase 3 planned for later in 2021. After the completion of all major phases, the Conservancy plans to secure funds to install an entry plaza with a water feature, seating, and a babbling brook down to a pebble beach for kayak and canoe launching.

Exploration Green encompasses **200 acres total**, with nearly 40 acres of both detention lakes and wetlands. The wetlands, once a vital part of this region's native ecosystem, now reintroduced, are playing an integral role in the stormwater detention capacity. Upon completion, Exploration Green will be home to **5,000 native trees and shrubs and over 150,000 wetland plants**. The trees and wetlands serve as native habitat for migrating and resident wildlife species.

Exploration Green has observed a fivefold increase in native species, protecting over 1,000 unique native plant and wildlife species. Additionally, this urban green space provides residents with six miles of 10-foot-wide paved hike and bike trails (to be connected to over 20 miles of County-owned trails), nature observation and education activities, all providing opportunities to enhance mental and physical health through nature connection. The Conservancy estimates that over 300 people per day visit the area – 7 days a week, 52 weeks per year.

Closing Remarks

This model replication statement will not answer all possible questions about the Exploration Green project, but it does address many of the more critical aspects of building and managing an effective project. Readers are encouraged to address questions through EGC's [website](#) and emails. This project is worthy of duplication, and EGC looks forward to helping others that may aspire to replicate a project such as Exploration Green. To learn more about replication, please see Exploration Green Conservancy's "[Replication How-To](#)."

Exploration Green: Remaining Needs

Though EGC has made considerable progress, they would like help and support with the following goals:

- **Corporate partners and small-businesses to fund** events, an entry plaza and education center, hire a full-time staff member, maintenance and upkeep, organizational operations, educational materials, and marketing resources.
- **Media visibility** to bring awareness to their project, increase replication efforts, increase volunteer base, and recognize those involved.
- **Volunteers** for administrative and IT work to help with project upkeep and volunteer coordination efforts.
- **School partners** to bring awareness of Exploration Green to local schools and to include Exploration Green in curriculum and field trips.

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["THE CONSERVATION PROJECT MANUAL"](#)

Appendix

What is an urban green space?

Urban green space is land that includes vegetation, such as grass, trees, shrubs, and wildflowers in a highly populated and developed region. Examples include parks, green schoolyards, community forests, green roofs, trails, wetlands, and community gardens. Urban green space serves developed communities

both a wide range of ecosystem services as well as promotes positive community outcomes, including enhancing nearby resident health and local property values.

What is a wetland?

Wetlands are transitional areas between land and water and offer a variety of benefits. The wetlands at Exploration Green are a series of specially constructed stormwater wetlands. Stormwater wetlands act in similar ways as natural wetlands, but by design, slow water runoff from storm events and retain stormwater for a brief time before slowly releasing the water back to the natural system. This process helps to significantly reduce or prevent flooding from heavy storms and slows the erosion of banks from fast-flowing water.

The process of slowing water down naturally with plants allows for the sediment carried by the quick running water to settle out in the wetland. Through natural biochemical and physical processes, wetland plants and associated microorganisms reduce levels of hydrocarbons, metals, excess nutrients, bacteria, and sediment that are characteristic of urban, suburban, and roadway stormwater runoff. These processes create cleaner water as it leaves the wetland to travel through the local waterways and bayous to the bay. An added benefit of stormwater wetlands is the habitat created for migratory birds, fish, and insects.

What is a 6 to 12-inch vs. 12 to 25-inch vs. 50+ inch rain event?

The Clear Lake area has endured eight 6-12 inch rains, five 12-25 inch rains, & one 50+ inch rain (Harvey) since 1979.

What is a native habitat?

Native habitat includes plant and wildlife species that are indigenous to a particular region, meaning they live or grow there naturally and were not introduced there by human influence. Native plants will thrive in the soils, moisture, and weather of their respective region. Native plants help the environment as they work to increase area biodiversity, providing habitat and food that attracts birds, pollinators, and other wildlife. Native plants also require less maintenance and water than non-natives, while improving air quality and preventing water run-off. Every area in Exploration Green uses only native trees, shrubs, and grasses totaling over 155,000 native plants to date.

Economic Value

Flood Mitigation

The immediate economic impact for the region is nearly \$50 million in construction costs. The other prominent economic impact is on flood mitigation. The stormwater detention efforts will protect over 2,000 homes, according to the hydrology studies. Conservative estimates are that this would save over \$100 million in each 8+ inch rain event. Direct home protection during Hurricane Harvey saved at least 150 homes from flooding, based on an estimate on homes that historically had flooded in smaller rains but had no damage during Harvey. Typical home repairs would average \$50,000 or more after a flood.

On this basis, the project saved \$7.5 million in flood damage to these homes alone. At completion, at least 2,000 homes will be protected from flooding in an 8+ inch rain event. With the same \$50,000 per-home logic, the future savings exceed \$100 million for each 8+ inch rain event. Water quality, green lifestyle, and carry-on business impacts are not factored in this estimate.

Property Values

The economic impact on home values is already apparent and estimated at \$120 million. Over 400 homes directly touch the project, and over 2,000 are within one block. Property value increases for these direct 2,400 homes are estimated to exceed over \$50,000 per-home, or at least \$120 million in home values alone. [Study: Increased Clear Lake Property Values](#)

Supplementary Documents

Process and Implementation

For an extended overview of EGC's process and implementation, please see [this](#) supplementary information from CLCWA.

Current Progress

For a look at EGC's current progress as of January 2021, please review their website's [EGC Impacts by the numbers](#) page.

Standard Organization Bios

The Exploration Green Conservancy is 501 (c)(3) nonprofit dedicated to creating, maintaining and operating the habitat restoration and recreation facilities within Exploration Green, while concurrently supporting the use of the area for stormwater detention. Get involved and learn more at explorationgreen.org and follow us on Facebook @ExplorationGreen, Twitter @XplorationGreen, and Instagram @explorationgreen for the latest.

Texan by Nature (TxN) unites conservation and business leaders who believe Texas' prosperity is dependent on the conservation of its natural resources. TxN amplifies projects and activates new investment in conservation which returns real benefits for people, prosperity, and natural resources. Texan by Nature achieves mission goals through the Texan by Nature Certification program, Conservation Wrangler program, Symposia series, and the Texan by Nature 20. Get involved and learn more at texanbynature.org and follow us on Facebook @TexanbyNature, Twitter @TexanbyNature, and Instagram @texanbynature for the latest.

Contact Information

Contact Texan by Nature at info@texanbynature.org & 512-284-7482 or Exploration Green Conservancy at explorationgreen@gmail.com if you would like to support EGC, volunteer, provide resources or connections, are interested in partnering, or would like to learn more.