VOL 3

walter p moore

STEWARDSHIP REPORT

LIVING WITH WATER

INSIGHTS INTO IMPACT AND RESILIENCE

Approximately 4 billion people live under highly water-stressed conditions at least one month out of the year.

- World Health Organization

Water is essential to life; it makes up more than half of the weight of a human body and covers nearly three-quarters of the Earth. Yet civilization's relationship with water is paradoxical and complex. While it sustains communities, billions of people still experience severe water scarcity. Even in developed regions, there is rarely the "right" amount of water, and many regions oscillate between scarcity and excess.

As engineers, we apply scientific principles to design systems that protect public health and safety. Historically, this meant creating systems to convey unwanted water quickly away from development while simultaneously creating systems to bring potable water back to the same areas. Stewardship requires understanding how resources move through and influence interconnected systems.

At Walter P Moore we embrace our role as resource stewards. When water is viewed as a resource, the response changes. Rather than attempting to control water, we recognize the power of its natural behaviors and design systems that embrace nature while allowing development to respond more resiliently to extreme events.

Our goal is to inspire collaboration, strengthen understanding, and translate complexity into actionable insights that support more resilient communities. This requires education and advocacy for new approaches that address current and future water demand, as well as estimates future water-related hazards.

Use this report as a starting point: to ask new questions, to set goals that scale, and to inspire strategies that perform across both water scarcity and extreme rainfall.

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Cover: Springwoods Village / Spring, TX

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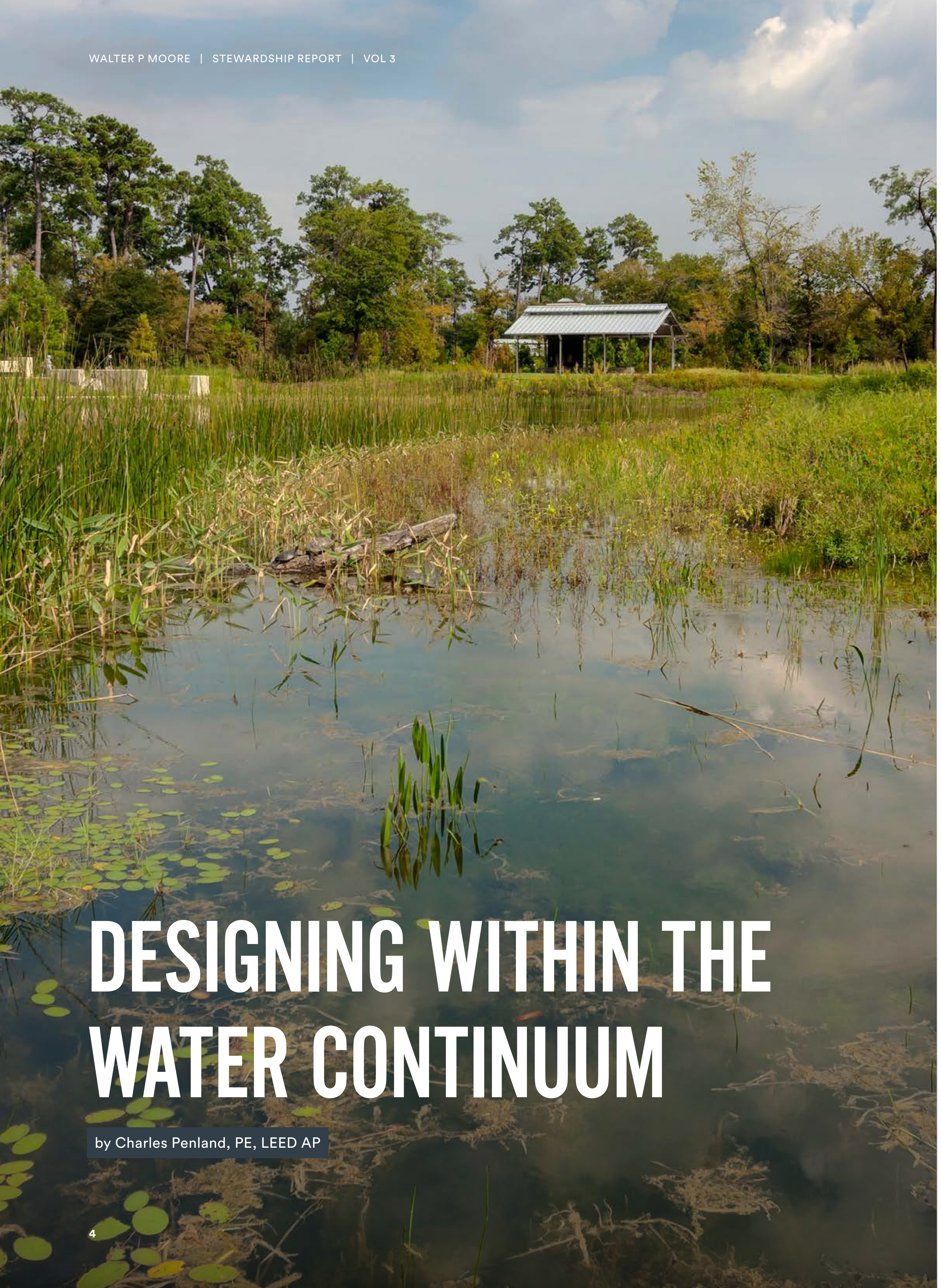


DESIGNING WITHIN THE WATER CONTINUUM

by Charles Penland, PE, LEED AP

How We Think About Water

ONE OF MY FAVORITE THINGS TO DO is sit by a mountain stream and watch the consistent yet constantly changing flow of water. It is mesmerizing.

Civilization has always migrated toward areas with abundant clean water. As we set out to prepare this report, we began to think about water as a continuum, where at one extreme there is more water than we can accommodate, and at the other there is too little to sustain us. This continuum shapes how we design, plan, and respond in the places we live and work.

→ Water is a fact of life, neither good nor bad, but always present in some form.

→ Its impact and its value are defined by how we understand and respond to it.

→ As engineers, our role is not to control water, but to steward it—responding with care, foresight, and responsibility.

→ Sometimes water requires protection and care: preserving its quality, conserving its flow, and restoring its place in the landscape.

→ Other times, we must protect ourselves by designing systems that withstand its excess and mitigate its risks.

→ Between scarcity and excess lies a space of sufficiency, where water must be actively managed, not passively accepted.

→ Stewardship means recognizing that water's behavior is natural, but its consequences are shaped by the decisions we make in how we plan, design, and build.

Where Challenges Are Converging

We prize yet undervalue water. As a result, communities around the world face growing water-related challenges; from severe drought and aquifer overuse to increasing flooding and sea level rise. In some places, both extremes occur at once.

Across the world, efforts are underway to address these challenges. Work is advancing to protect water quality, improve efficiency, and prepare for sea level rise, severe storms, and flooding. New design criteria and more integrated approaches are reshaping how we interact with water systems, while long-standing practices around use and waste are being reconsidered.

Strategies such as rainwater capture and reuse, nature-based approaches, and more resilient supply planning are helping communities manage both scarcity and excess while improving water quality.

Planting and irrigation practices are evolving to reduce the demand, while systems that combine stormwater detention and rainwater retention for reuse are becoming more common, allowing for capture of a portion of the excess for use later as irrigation.

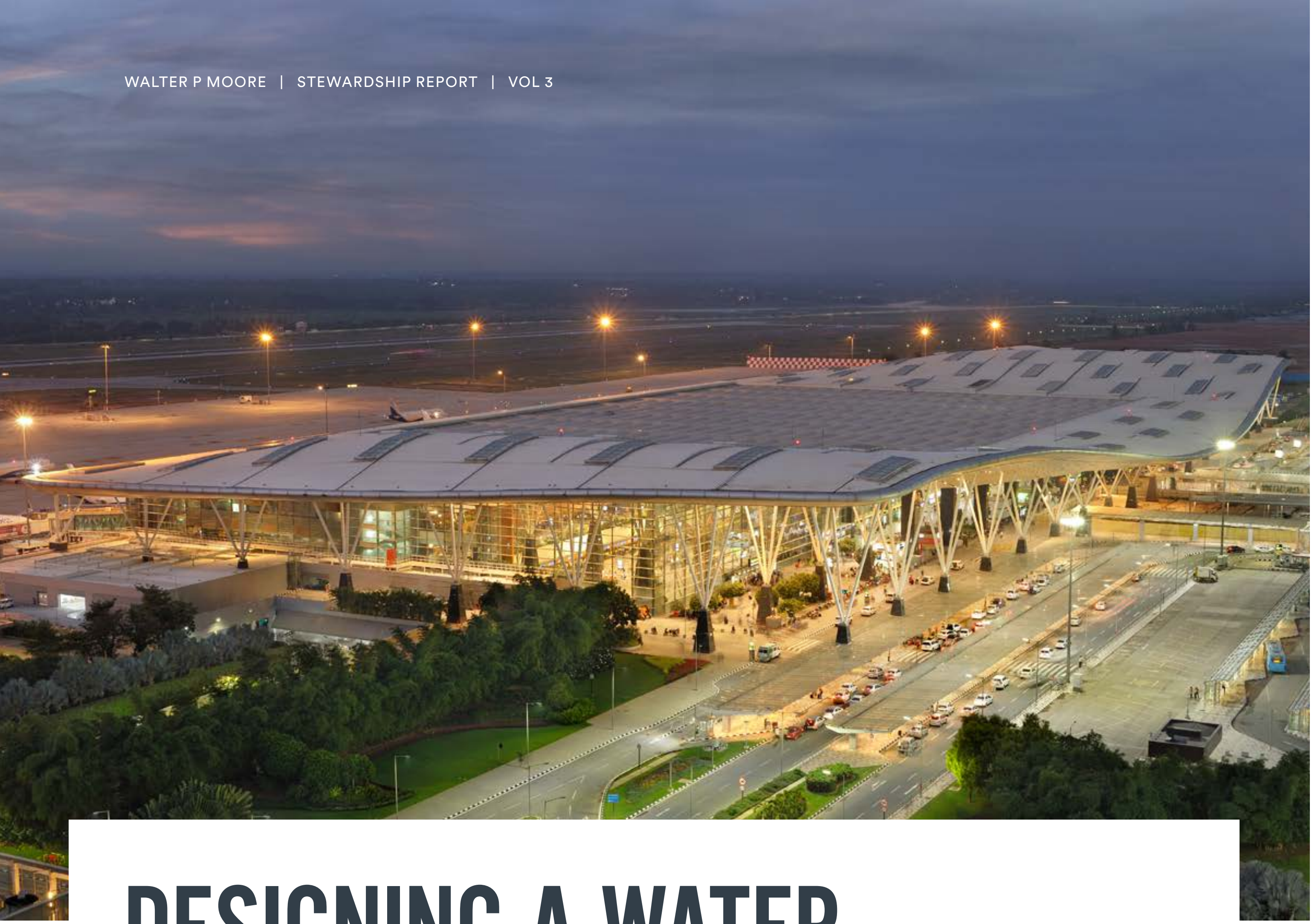
Individually, these approaches are incremental. Together, they can have a significant impact in helping communities live with water more successfully.

How We Are Thinking About Water

Walter P Moore has contributed to addressing these challenges across a range of contexts. The content that follows brings together how our teams are thinking about and working with water across this continuum; from scarcity to excess.

Drawing on expertise spanning technology, modeling, campus development, forecasting, and more, this report gathers a range of perspectives from across the firm.

We believe thoughtful design can shape how communities live with water more effectively. By sharing these insights, we hope to contribute to ongoing conversations within the industry and encourage more deliberate, informed approaches to water stewardship.



DESIGNING A WATER POSITIVE AIRPORT

by Rashmi Kamble, IGBC AP

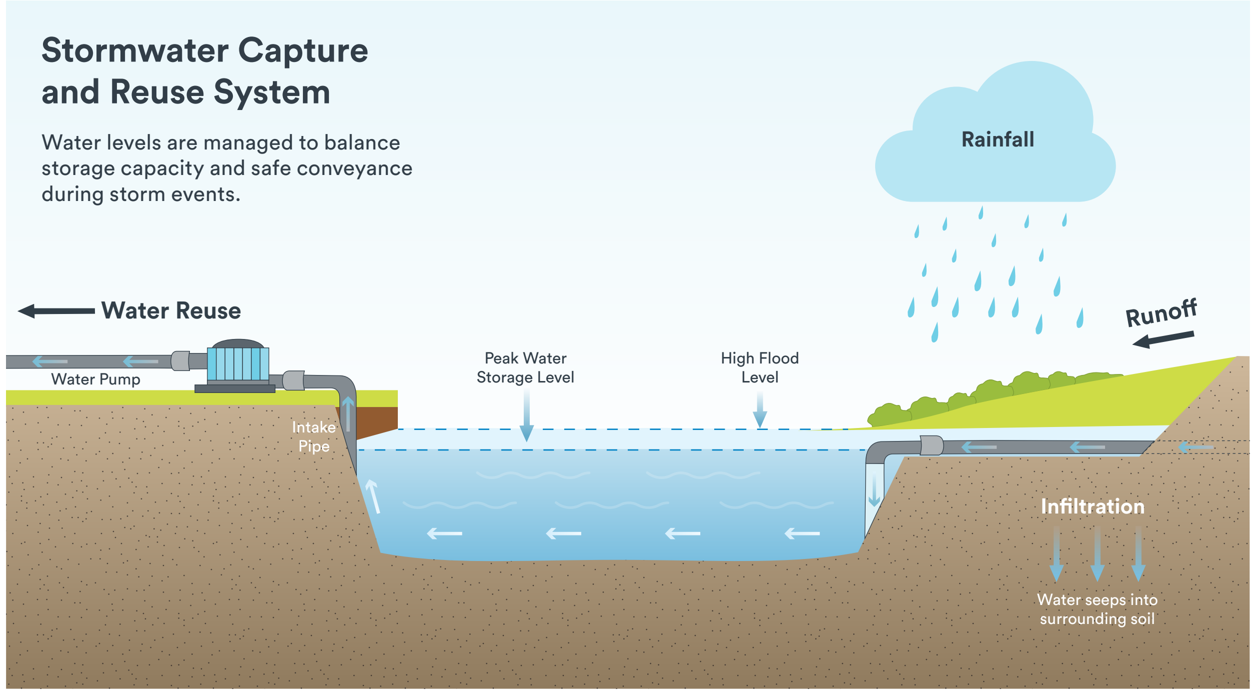
AIRPORTS ARE AMONG THE MOST water intensive infrastructure systems, requiring significant volumes of water for passenger services, cooling, landscaping, and firefighting. At Bangalore International Airport (BIAL), located in one of India's fastest growing metropolitan regions, rising demand combined with increasing regional water scarcity created an urgent need for a more resilient water strategy.

Rather than relying solely on external water sources, Walter P Moore worked with BIAL to develop a water positive approach—one that captures and reuses rainfall across the airport's expansive surfaces while supporting groundwater recharge for the surrounding region.

Opportunity in Scale

Airports present unique opportunities for rainwater harvesting. Runways, taxiways, and aprons create vast impervious surfaces that generate substantial runoff during rainfall events. At BIAL, this scale allowed rainfall, traditionally treated as a loss, to be reconsidered as a reliable resource.

Our team helped design a coordinated system of storage ponds, bioswales, and underground tanks that captures runoff and integrates it into the airport's operational water supply. In doing so, the approach reduces pressure on municipal water sources, supports aquifer recharge, and improves onsite stormwater management.



Stormwater Capture and Reuse System

Water levels are managed to balance storage capacity and safe conveyance during storm events.

Engineering Strategy

The design process began with a detailed assessment of the airport's multiple drainage catchments to understand how water could be captured, stored, and reused across the site. Historical rainfall data and hydrologic modeling were used to estimate rainwater harvesting potential under dry, average, and wet conditions, helping optimize system sizing and performance.

To address future uncertainty, projections such as SSP5-8.5, a high-emissions climate scenario, can be applied separately to assess long-term variability and water supply risk by calculating climate change factors for unique design storms. Together, these analyses informed a stormwater management strategy that redirects runoff into storage and recharge systems while safely conveying excess flows. The result is a system designed to perform reliably under present conditions and evolving climate pressures.

System Innovation

Simplicity and efficiency guided key design decisions. Gravity-fed connections between storage ponds reduce reliance on pumps and mechanical controls, lowering energy demand and operational complexity. Storage capacity was further enhanced using riser weirs, allowing ponds to serve multiple functions without expanding their footprint.

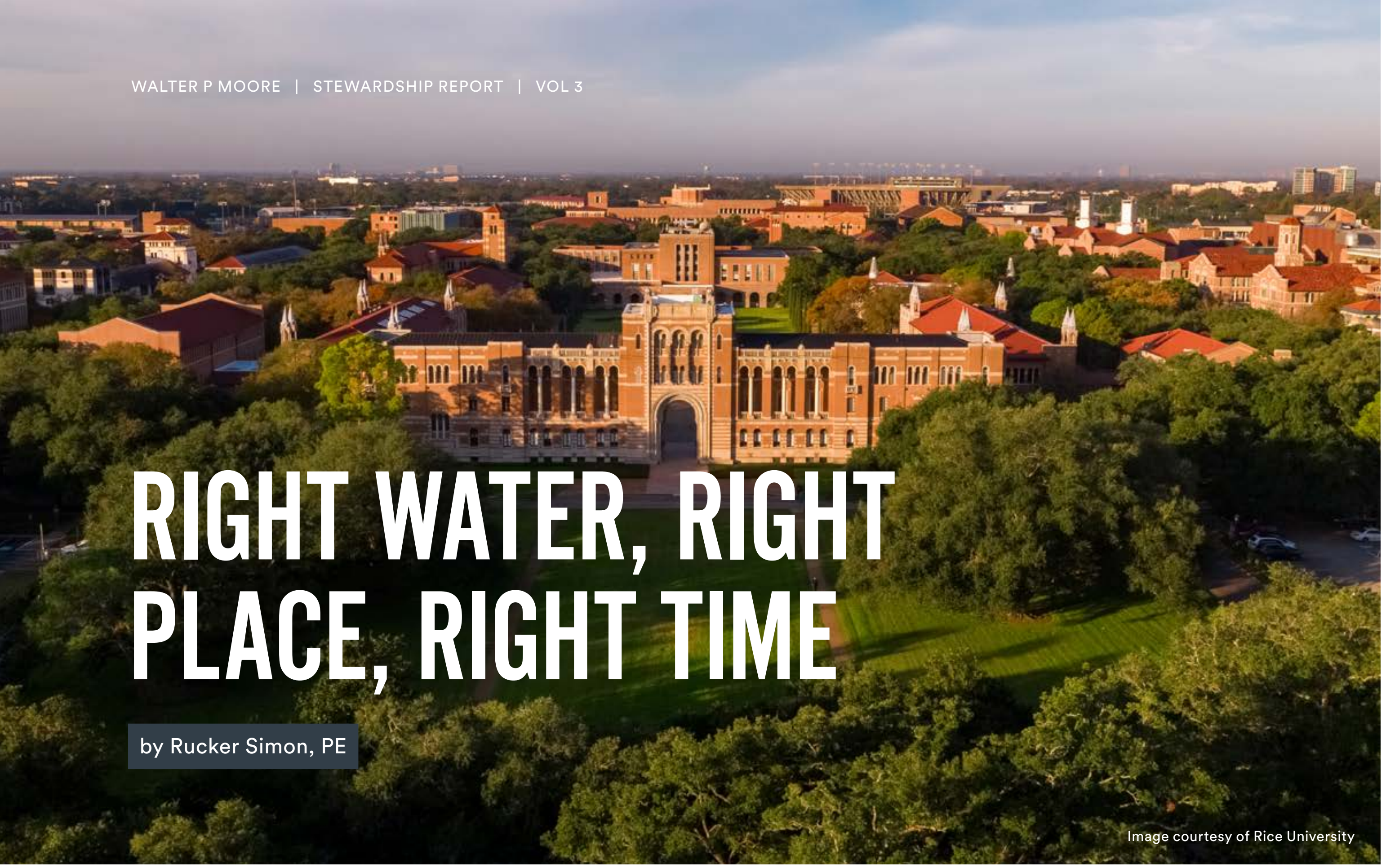
> Airports present unique opportunities for rainwater harvesting.

These strategies enabled dynamic use of available storage while maintaining operational reliability, supporting both day-to-day water needs and long-term resilience.

Stewardship in Action

Today, BIAL meets a substantial portion of its water demand through harvested rainwater and recharged groundwater, significantly reducing dependence on municipal supplies. The system lowers operational costs, strengthens water security during dry periods, and contributes to improved groundwater levels in surrounding areas benefiting nearby communities.

The collaboration between BIAL and Walter P Moore demonstrates how large airports can evolve into water positive systems through strategic planning, engineering innovation, and climate adaptive design. Rooted in stewardship, the project balances operational needs with ecosystem health while setting a benchmark for water resilience that can inform future projects globally.



RIGHT WATER, RIGHT PLACE, RIGHT TIME

by Rucker Simon, PE

Image courtesy of Rice University

HOUSTON, TEXAS SITS AT THE CENTER of a paradox. It receives abundant rainfall yet remains increasingly vulnerable to shortages of reliable freshwater supply due to regional population growth. This paradox impacts planning for university campuses due to the dependance on water for building systems, research, landscape identity, and other aspects of daily life. Rice University, a comprehensive research university in Houston, recognized these pressures and made a deliberate decision to address water scarcity before it became a constraint, and to do so in a way that strengthens resilience and supports long-term sustainability.

The university engaged Walter P Moore to develop a holistic water management and resilience plan. The goal went beyond fixed reduction targets to evaluate tradeoffs, understand operational realities, and develop a long-term strategy grounded in how the campus actually uses water.

> The process began with a simple but critical question:
>
> How do we define water goals that remain meaningful as conditions change?

Setting Goals That Scale

That question reinforced what is not always intuitive; that static targets are not enough. Water demand changes with campus size and performance, so a single cap on total consumption, while simple, loses meaning in an advancing world. Instead, the water plan tied performance to scalable metrics—such as water use per square foot, per irrigated acre, or per campus user—allowing progress to be measured consistently even as the campus evolves.

The team grounded its analysis in studying current operations, combining metering data with input from campus facilities teams to map where potable water is used and where intervention matters most. The analysis reaffirmed that effective water management requires more than reducing overall consumption. It requires matching water source characteristics—reliability, cost, timing, quality, and storage needs—to specific campus demands.

Matching Supply to Demand

Two findings reinforced a key principle of the study: water stewardship is not simply about identifying alternative supplies, but understanding which sources are best suited for specific operational demands.

> The Rice University study found that one existing building dewatering system could offset approximately 7.5% of annual campus water use, with a payback period of just over three years.

Water Reuse Strategies

Strategy	Potential Reduction to Potable Water Use
Expand Condensate Capture System	15.0%
Harvest Rainwater	8.0%
Reuse Building Dewatering Water	7.5%
Reuse Space Science Clean Room Water	1.0%

Rainwater often arrives in large volumes and is well suited for irrigation but occurs intermittently, making storage a key challenge. At the same time, the campus already requires additional stormwater detention as it grows. By integrating weather-smart control systems, those required detention systems can also support water reuse—capturing stormwater for irrigation and reducing potable water demand without significant additional infrastructure.

Other water sources offer a different advantage: reliability. Building dewatering systems, while typically unseen to the public, can provide a steady flow that aligns with continuous campus demands such as cooling towers. Because the supply can often be used immediately, little or no storage is required. This reduces both infrastructure needs and potable water demand.

The Rice University study found that one existing building dewatering system could offset approximately 7.5% of annual campus water use, with a payback period of just over three years. This finding highlights the value of matching source characteristics to demand profiles rather than treating all water as interchangeable.

Planning for What Comes Next

With these strategies identified, the next challenge was understanding how the strategies would perform as the campus grows. For instance, expanding building square footage increases cooling demand. That increased cooling demand may also create opportunities for additional condensate capture, a water supply that is well suited to cooling tower makeup. Another strategy to consider is to plan for changes in landscape that affect irrigation demand to include design that creates new opportunities for rainwater storage.

Evaluating these relationships at a single point in time risks prioritizing solutions that work today but fail to scale. To address this, the team used scenario-based modeling to evaluate how future growth, climate conditions, and operational changes could affect both water demand and alternative supply availability over time.

This approach helped identify strategies with the greatest long-term impact, operational feasibility, and resilience value.

From Strategy to Action

The result is a roadmap that sets scalable performance targets and defines how to achieve them. That plan is already translating into action. Strategies such as expanded condensate capture, environmentally responsive irrigation systems, enhanced submetering and monitoring and leak detection are being implemented across campus.

For Rice University, resilience does not mean using less water at all costs. It means recognizing water as an asset and aligning supply, demand, and system performance more effectively over time.

The same framework can help other campuses and large institutional facilities evaluate how alternative water sources and operational demands evolve alongside long-term growth.

Stewardship means delivering the right water, in the right place, at the right time.

STEWARDING WATERBODIES FOR LONG-TERM COMMUNITY RESILIENCE

by Hrushikesh Sandhe, PE, LEED AP

ACROSS MANY REGIONS OF INDIA, historic waterbodies such as ponds, lakes, and reservoirs have long moderated the daily and seasonal realities of water availability. They store rainfall, support groundwater recharge, reduce flood impacts, and provide reliable access during dry periods. In this way, they have functioned as shared reserves that help communities live with variability rather than react to it.

As these systems have degraded due to urban growth, encroachment, and fragmented responsibility, the impacts are felt most sharply during periods of scarcity. When water is no longer captured, protected, or equitably shared, communities lose both a physical resource and a social buffer. Restoring waterbodies, therefore, is not only a matter of improving hydrology. It is an act of stewardship that shapes those who have access to water, when they have it, and for how long.

Successful rejuvenation depends on collaboration long before construction begins. Stewardship requires aligning engineering decisions with public institutions and community ownership, so waterbodies continue to serve everyone across cycles of sufficiency and stress.

Translating Stewardship into Practice

To support this water first approach, Walter P Moore partnered with Water For People–India to develop a technical framework for the rejuvenation and construction of waterbodies across diverse geographies. The effort was guided by a central question: how can technical guidance reinforce long-term water availability while remaining responsive to local conditions and community needs?

Waterbody basin left dry due to degradation

> Restoring waterbodies, therefore, is not only a matter of improving hydrology. It is an act of stewardship that shapes those who have access to water, when they have it, and for how long.

The framework is intentionally structured around three groups whose collective decisions determine whether waterbodies function as enduring assets or gradually fail:

- → **Engineers and field practitioners** assess sites and design interventions that respond to hydrologic, geologic, and water quality conditions.
- → **Local governments and service providers** oversee planning, regulation, and long-term operation and maintenance.
- → **Communities and stakeholders**, who rely on these waterbodies daily and play a critical role in protecting them from neglect, pollution, or encroachment.

Aligning these roles reflects a core stewardship principle: water systems remain resilient when design, governance, and use reinforce one another over time.

From Framework to Water Outcomes

Rather than serving as a prescriptive design guide, the framework consolidates national guidelines, regulatory requirements, and Central Pollution Control Board–based restoration approaches into an implementation roadmap that supports consistent water outcomes. It addresses the full waterbody lifecycle, from initial recognition and restoration through long-term protection and sustenance.

Technical guidance covers site selection, hydrologic and hydrogeologic assessment, water quality management, and context appropriate design standards. Equal emphasis is placed on the sustenance phase, recognizing that water availability over time depends on operation, monitoring, and maintenance as much as on initial construction.

Nature based solutions are integrated throughout work with natural hydrologic processes. By supporting groundwater recharge, stabilizing ecosystems, and improving storage efficiency, these approaches help preserve water during dry periods while retaining flexibility during wetter ones.

The framework also highlights the role of geospatial tools such as GIS, remote sensing, and satellite imagery in understanding how waterbodies change over time. These tools enable practitioners and institutions to:

- → **Assess** water availability, use, and quality
- → **Track** changes across seasons and years
- → **Identify** early signs of pollution, encroachment, or degradation

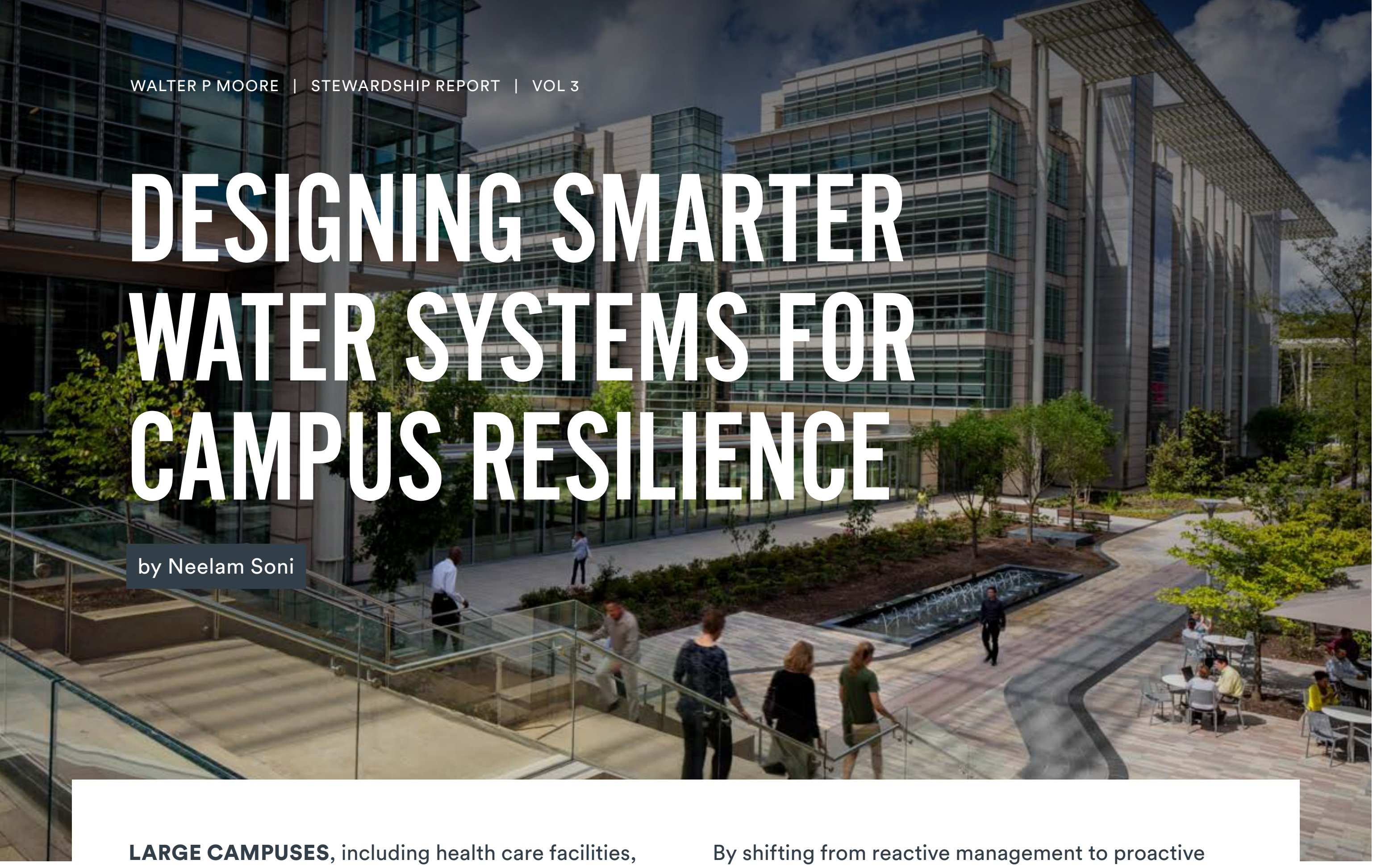
When combined with local knowledge, this information supports more informed decisions about where and how to invest in water stewardship.

Equity as Water Security

Water stewardship breaks down when access is uneven. Recognizing this, the framework embeds Gender Equality, Disability, and Social Inclusion principles throughout the waterbody lifecycle. Inclusive engagement helps identify who depends on a waterbody, how it is used across seasons, and where access barriers exist. These insights inform design choices, safety considerations, governance structures, and long-term stewardship responsibilities.

By foregrounding equity, the framework treats inclusion not as an added value but as a condition of water security. When communities are empowered to participate, protect, and manage waterbodies, restored systems are more likely to endure.

Reviving waterbodies is not a standalone engineering task. It is a coordinated effort to steward water where it has always belonged, within the landscape and at the center of community life. Each restored pond or lake strengthens resilience by preserving access, buffering scarcity, and sustaining water resources for generations to come.



DESIGNING SMARTER WATER SYSTEMS FOR CAMPUS RESILIENCE

by Neelam Soni

LARGE CAMPUSES, including health care facilities, corporate headquarters, universities, and industrial complexes, depend on reliable water systems to support daily operations, emergency services, and future growth. As these campuses expand and age, traditional water system designs often provide limited visibility into system performance and struggle to adapt to changing demands, seasonal peaks, and emergency conditions. Many systems were designed around fixed assumptions rather than real time data, meaning they do not reflect how water networks behave as conditions change.

These challenges place increasing pressure on owners and operators to deliver reliable service while managing energy use, operational costs, and long term resilience.

Rethinking the System

Smart water infrastructure addresses these challenges by combining hydraulic modeling, digital monitoring, and operational optimization into an integrated approach. Rather than relying solely on static design assumptions, such as fixed demand patterns, estimated peak factors, or constant operating conditions, this strategy allows teams to understand how water systems perform in real time and make informed decisions that strengthen reliability, efficiency, and sustainability.

By shifting from reactive management to proactive planning, smart infrastructure helps campuses prepare for growth, respond more effectively to system stress, and operate with greater confidence under both routine and emergency conditions.

From Data to Decisions

At the core of smart water infrastructure are calibrated hydraulic models that simulate system behavior during normal operations, peak demand periods, and emergency scenarios, including fire events. Informed by field data and validated against observed system performance, these models allow engineers to identify pressure limitations, capacity constraints, and operational inefficiencies before they disrupt service.

Digital tools, including supervisory control and data acquisition (SCADA) systems, Internet of Things (IoT) sensors, and geographic information system (GIS) mapping, enhance these models by providing continuous insight into pressures, flows, and storage levels across the network. When integrated, modeling and digital monitoring allow operators to detect issues early, test operational changes virtually, and refine system performance over time. As shown in Figure 1, this connected workflow transforms water systems from reactive networks into proactive, data driven assets.

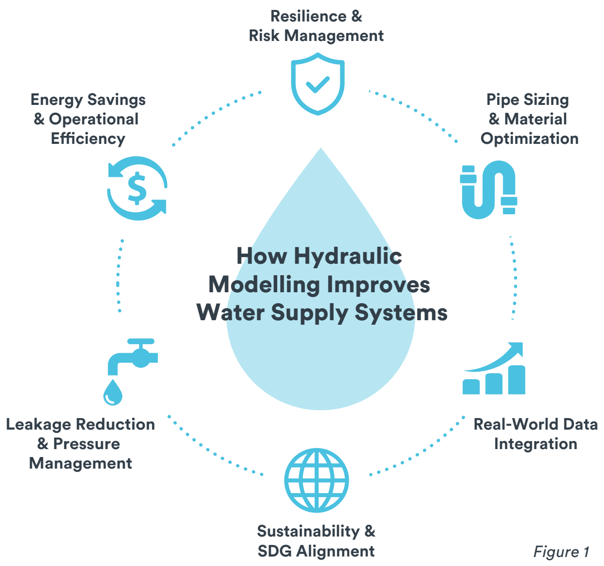


Figure 1

Results on the Ground

This approach has delivered measurable benefits across a range of campus environments. At City Place, a master-planned community in Spring, Texas, hydraulic modeling revealed pressure deficiencies during fire flow conditions as the development expanded. Targeted upgrades, including additional storage and booster systems, were identified to improve pressure reliability and maintain compliance with safety standards. Seasonal demand analysis also informed pump scheduling and storage operations, improving both system performance and energy efficiency as shown in Figure 2.

City Place - Minimum Residual Pressure (psi) by Scenario

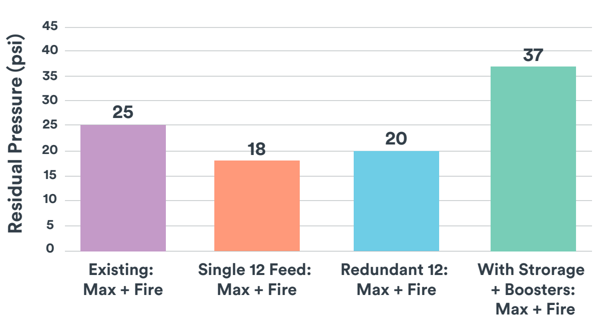


Figure 2

This connected workflow transforms water systems from reactive networks into proactive, data driven assets.

Similar modeling strategies supported the Walmart Home Office campus redevelopment, where multiple demand scenarios, including average, peak, and fire flow conditions, were evaluated to ensure reliable water supply and fire protection throughout campus construction. A comparable approach was applied at a Film City project in India, where seasonal fluctuations in water consumption and storage constraints created operational challenges. Hydraulic modeling was used to optimize storage capacity and refine reservoir placement, improving system resilience while reducing pumping requirements and overall operating costs.

Data driven approaches have also been applied at large health care campuses to improve pressure stability and emergency readiness. Together, these examples demonstrate how hydraulic modeling and data driven analysis can improve reliability, operational efficiency, and resilience across diverse campus settings.

A Stewardship Perspective

Smart water infrastructure illustrates how modeling, digital monitoring, and data driven planning can strengthen campus water systems over the long term. By improving visibility, optimizing operations, and planning proactively for growth and emergencies, these approaches support more resilient and sustainable water management.

As campuses face increasing demand and climate related pressures on water resources, integrating smart infrastructure strategies is not simply a technical upgrade. It is a stewardship decision that helps ensure safe, reliable water systems capable of adapting to change while supporting long term operational and environmental responsibility.

WATER STEWARDSHIP IN PLAIN SIGHT

by David Lundberg, PE and Sophie Snapp

WHEN LAND IS DEVELOPED, water continues to fall on and move across the site, and it remains our responsibility to manage. For decades, conventional development has treated stormwater as something to convey off-site as quickly as possible. Green Stormwater Infrastructure (GSI) offers a different response, one rooted in stewardship of a resource rather than removal of a burden.

The built environment often creates stormwater challenges, including degraded water quality and added strain on downstream systems, impacts that are increasingly intensified by extreme weather. Engineers must account for how stormwater is captured, treated, and released from a site. In practice, that can mean slowing runoff, filtering pollutants, encouraging infiltration, and restoring functions that development has displaced.

Working With Water

A stewardship approach to stormwater management begins with understanding how water naturally moves through a site. The most effective solutions bring developed land into closer alignment with previous hydrologic patterns by restoring storage, filtration, and flow paths the land once provided on its own.

GSI helps achieve this by adapting elements already in the design and embedding those functions throughout a site, encouraging a more holistic response than simply meeting minimum requirements. GSI embraces a more holistic approach and does not simply meet minimum requirements but adapts and enhances traditional design elements to embed ecosystem services throughout a site. Rather than relying solely on centralized detention or conveyance, this approach uses small but intentional adjustments to turn features such as landscaping, pavement, and circulation areas into tools for managing water.

By refining these elements, engineers can create bioswales, bioretention areas, and permeable pavements that are distributed throughout the site and function as layered systems. Individually, each feature treats a portion of runoff; together, they form resilient networks capable of responding to a range of conditions.

Just as importantly, GSI does not reinvent how water behaves. Nature already provides effective models. GSI succeeds when it follows the land and mimics predevelopment patterns, restoring storage where low areas were filled, filtering runoff where pavement replaced green space, and slowing flow before it concentrates downstream.

GSI in Action

Across The University of Texas at Austin, a major urban campus, our teams implemented GSI through multiple, complementary interventions, demonstrating how stewardship scales from localized features to coordinated, campus wide strategies.

One of the most illustrative examples is the re-alignment of a three-quarter-mile roadway and bike lane corridor that serves as a primary circulation route through campus. While essential for daily movement, this corridor previously discharged runoff directly to a nearby creek, carrying oils, sediments, and debris with every storm. The reconstruction of this essential corridor provided an opportunity to remove oils, sediments, and debris from runoff before it is discharged to a nearby creek.

University of Texas at Austin
Red River Road Realignment

Rather than concentrating treatment in a single location, the design distributes GSI features along the corridor. Bioswales, rain gardens, and permeable areas intercept runoff at the source, slowing flows and filtering water through soil and plant root systems before it is released gradually. By treating the water where it falls, the system improves water quality while reducing downstream demands.

Case Study Snapshots

Campus Biofiltration Basin

- → More than 10,000 cubic feet of stormwater storage
- → Captures and treats runoff before it reaches nearby waterways
- → Designed to integrate with surrounding landscapes while maintaining performance

Roadway and Bike Lane Corridor

- → Three quarter mile urban circulation route
- → More than twenty GSI features distributed across the site
- → Nearly all roadway runoff intercepted and treated before reaching the creek
- → Pollutants reduced through soil filtration and vegetated systems

A Scalable Strategy

As development continues and storm events grow more intense; the importance of thoughtful water stewardship becomes clearer. The consequences we experience tomorrow are shaped by the engineering decisions made at the site level today.

Stewarding water begins with incremental, intentional choices that improve how a site manages water and help restore balance between development and natural systems. GSI solutions are versatile and can be embedded into developments of any size, from small parking lots to master-planned communities to create meaningful impacts one decision at a time.

Paired with other water management strategies, green stormwater infrastructure is an important tool to address complex challenges at larger scales—and even a single, thoughtfully integrated feature can make a world of difference for the next drop of water.

DESIGNING WITH WATER

by Susan Turrieta, PE

THE REDESIGNED site for the Walmart Home Office campus in Bentonville, Arkansas represents a fundamental shift in how large corporate environments engage with nature. Rather than building a new campus elsewhere, Walmart reimagined its existing home office, transforming legacy infrastructure into an integrated, nature based system guided by the Big Nature philosophy.

Through landscape redesign, water balance and mapping, and Low Impact Development strategies, water is managed as a visible, valuable, and regenerative resource, integrated into the daily function and experience of the campus.

Changing the Model

Historically, stormwater was collected and conveyed off site as quickly as possible. Parking lots, roadways, and rooftops collected and conveyed stormwater directly into inlets and underground pipe networks. These conventional systems were designed to manage peak flows rather than improve water quality, groundwater recharge, or reuse.

Today, nearly all rainfall falling on the campus is captured, treated, and reused or released gradually—fundamentally changing how water moves through the campus.

The redesign of the Walmart Home Office campus intentionally broke from this model. Instead of expanding or replicating conventional infrastructure, the design team reenvisioned the campus landscape as a connected hydrologic system—one capable of slowing, treating, storing, and reusing water in ways that mimic predevelopment conditions. Utilizing the natural hydrologic system to convey stormwater significantly reduced the need for large diameter pipe networks.

Big Nature

Big Nature shaped how the campus landscape functions on the ground. New and previously developed areas were reconnected into a unified hydrologic system, replacing conventional stormwater pipe networks with landscape-driven conveyance that manages stormwater where it falls.

Paved areas intentionally drain to bioswales, rain gardens, and vegetated corridors, allowing stormwater to be slowed, treated, and absorbed as it moves across the campus.

Linked together, these systems form a continuous framework that supports both ecological and campus experience.

Water Balance

To support this landscape transformation, water balance and water mapping tools were utilized to examine how water enters, moves through, and ultimately exits the campus. Stormwater runoff and building condensate volumes were balanced against irrigation demands and stormwater detention requirements to size the campus's North and South Lakes. The lakes function as the final polishing and storage step in the stormwater treatment train. Treated stormwater and building condensate are stored and redistributed through a pressurized non-potable system for irrigation and maintenance, reducing dependence on municipal potable water up to 40% while providing more than 50 million gallons annually for reuse.

To further enhance resiliency the South Lake elevation is controlled by a weather actuated gate that anticipates rain events and releases the predicted storm volume 24 to 48 hours in advance, maintaining storage capacity while preserving water volume for reuse.

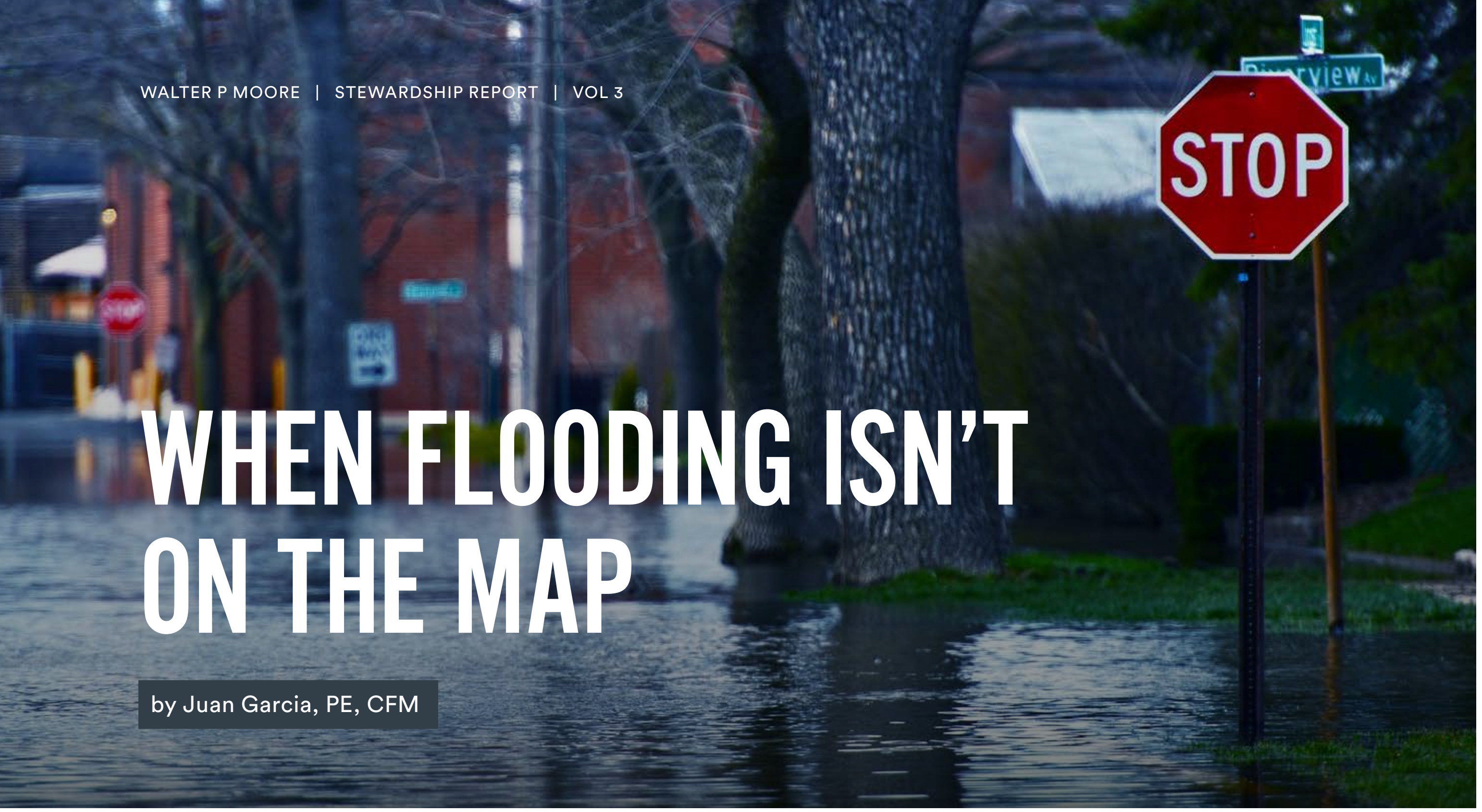
> Today, nearly all rainfall falling on the campus is captured, treated, and reused or released gradually—fundamentally changing how water moves through the campus.

Water Made Visible

Through an integrated approach to landscape and water management, the Walmart Home Office campus has become a visible expression of sustainable design. Stormwater infrastructure is no longer hidden; it is experienced through greenways, lakes, and planted landscapes that support both ecological function and human wellbeing.

By working with natural hydrologic systems rather than concealing them, the campus improves water quality, reduces infrastructure costs, and strengthens long-term water resiliency. The result sets a new standard for large-scale corporate environments, demonstrating how thoughtful design can make water visible, functional, and integral to everyday experience. What was once a conventional, pipe driven site now operates as a campus scale water system—where rainfall is treated as a resource rather than a byproduct.

Images: Walmart Home Office Campus



WHEN FLOODING ISN'T ON THE MAP

by Juan Garcia, PE, CFM

FLOODING IS NOT EXPERIENCED as a line on a map. For communities, flood risk is felt through street ponding, impassable roads, and water reaching homes in places not shown on commonly referenced flood maps. Valuable flood risk data is information people can understand, relate to, and use to prepare for conditions they are likely to encounter.

Much of the flooding residents experience occurs outside mapped riverine floodplains. Localized rainfall, shallow ponding in streets, and neighborhood scale drainage conditions often drive impacts that are not fully captured in FEMA flood mapping. These gaps can complicate public awareness and decision making, especially in areas where flooding is a recurring reality.

The Harris County Urban Flood Risk Pilot Study was developed to better reflect how flooding presents itself at the ground level. Rather than focusing solely on where riverine flooding is represented on FEMA flood maps, the study explores where and how localized, urban flooding does occur across neighborhoods, using data and communication tools designed to support clearer understanding.

Community Informed Engineering

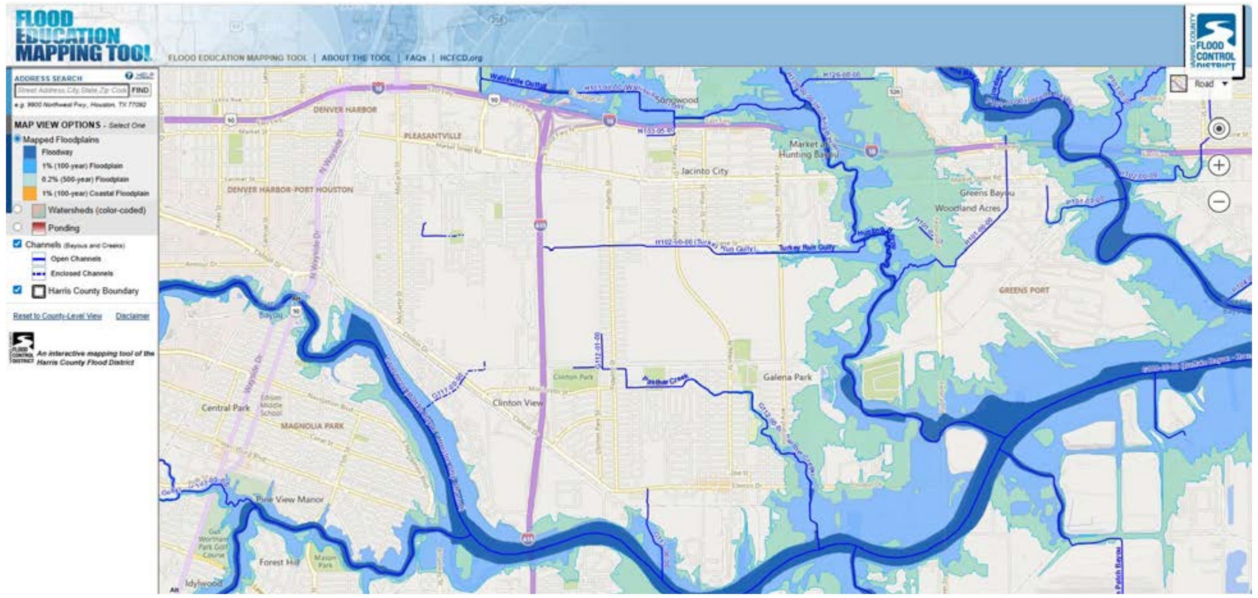
The pilot study was led by the Harris County Flood Control District, with technical support from our floodplain management experts in collaboration with local stakeholders. The project focused not only on analyzing flood behavior, but on translating complex modeling results into information that communities can use.

Early coordination identified several priorities for effective risk communication. Flood risk information needed to remain consistent with existing county datasets and terminology, reflect flooding at a localized scale, and be accessible to residents under real world conditions. These discussions made one design constraint clear: during rainfall events, residents typically access information on smartphones, often while on the move. That reality shaped how the project approached communication from the outset.

Translating Data into Information

The primary outcome of the pilot study was the development of a web based interactive tool. The tool focuses on neighborhoods prone to localized flooding, where street and structure impacts can occur outside mapped floodplains. These areas were selected based on flat terrain, aging drainage infrastructure, and known localized ponding conditions common across Harris County.

Complex hydrologic and hydraulic modeling results are organized into clear, intuitive, interactive maps that work seamlessly on both desktop and mobile devices. The tool presents modeled flood depths across multiple storm durations and intensities, allowing users to see how different rainfall conditions affect their neighborhood. By distinguishing between short, intense storms and longer duration events, the tool clarifies how flooding can develop in different ways and at different times.



Interactive mapping shows how storm intensity and duration affect localized flooding

Much of the flooding residents experience occurs outside mapped riverine floodplains.

Roadway safety is also incorporated into the analysis. Using TxDOT depth-based safety thresholds, the tool identifies locations where modeled ponding may create hazardous driving conditions. Roads are classified by risk level, reinforcing that flood impacts extend beyond property damage to include mobility and public safety.

Users can explore specific locations within the pilot areas to compare ponding depths across storm scenarios. Together, these views reinforce a key takeaway: flooding does not stop at the floodplain boundary, and risk varies significantly even within a single neighborhood.

Supporting Informed Stewardship

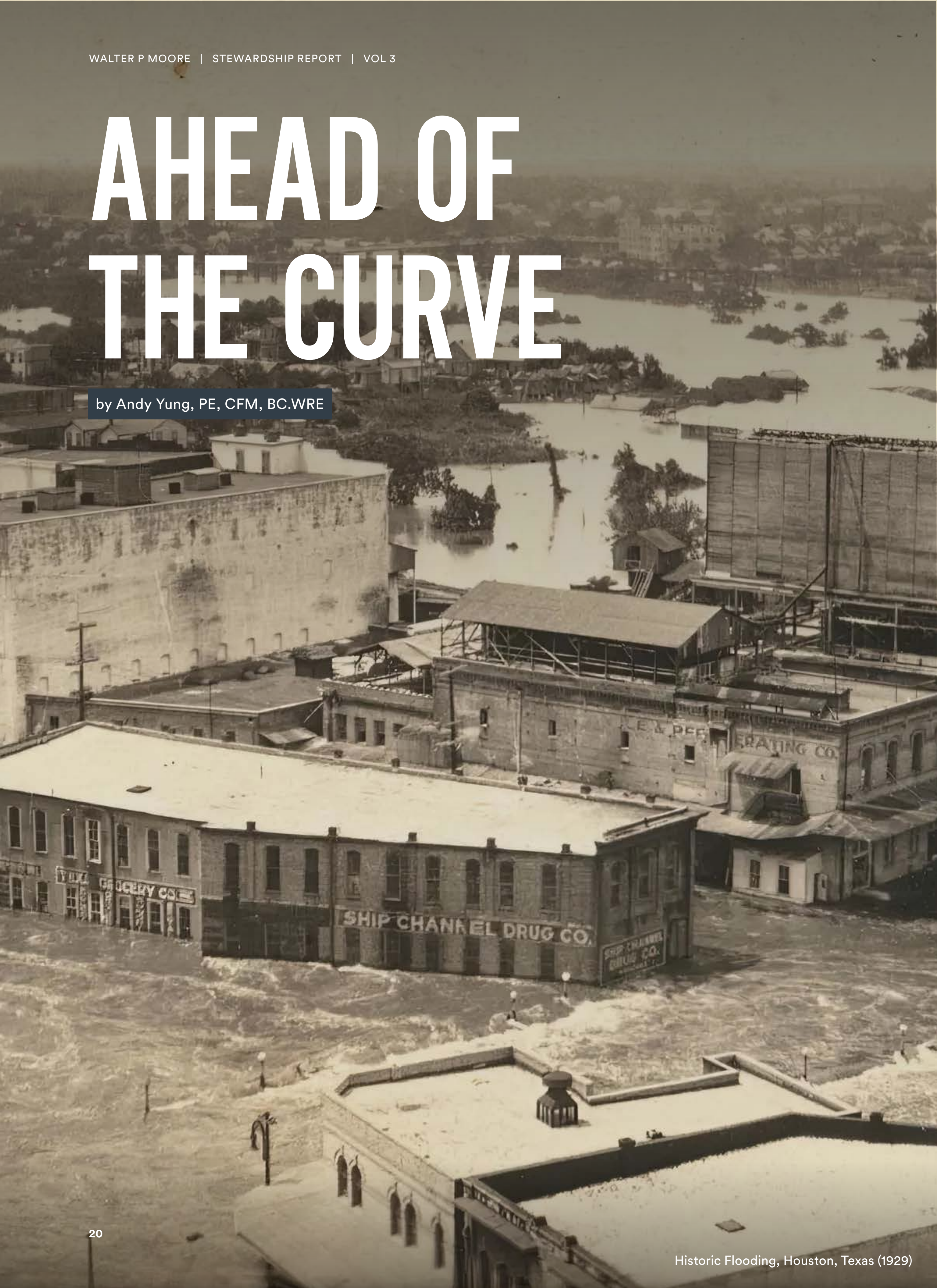
A central objective of the Urban Flood Risk Pilot Study was to support more informed stewardship of flood risk through clearer communication. One example involves translating flood probability from an annual statistic into a cumulative 30-year timeframe, consistent with a typical mortgage period. Presenting risk this way helps residents better understand the likelihood of experiencing flooding during their time in a home.

The tool also connects users to preparedness resources from FEMA and the National Flood Insurance Program. These encourage practical actions such as signing up for alerts, reviewing insurance coverage, and preparing for flood events before storms occur.

Flood mitigation infrastructure will always remain essential; however, flooding will continue to occur across places like Harris County, Texas. Stewardship requires more than building systems. It requires ensuring communities understand how water behaves locally and have access to information that supports better decisions before, during, and after storms. By pairing engineering rigor with accessible communication, the Urban Flood Risk Pilot Study helps lay the groundwork for long term resilience grounded in lived experience rather than lines on a map.

AHEAD OF THE CURVE

by Andy Yung, PE, CFM, BC.WRE



Historic Flooding, Houston, Texas (1929)

FLOODING HAS BEEN A PART of Harris County since Houston's founding in 1837 at the confluence of Buffalo Bayou and White Oak Bayou. Flat terrain, slow draining soils, and intense rainfall create a natural flooding reality. Development has changed how water moves across the landscape, increasing runoff and raising the stakes of each storm.

Historic flood events—from downtown inundations in 1929 and 1935 to Hurricane Harvey in 2017—underscore a central truth: flooding in Harris County is not an anomaly, but a constant shaped by how we plan, build, and prepare. Engineering stewardship in this context is not about holding water back, but about anticipating its behavior and helping communities live safely alongside it.

In 1937, the Texas Legislature established the Harris County Flood Control District (HCFCD) to manage storm and flood waters for public benefit. By the mid 1980s, HCFCD began integrating floodplain management into its approach, guiding development away from high risk areas and reinforcing that safety comes from working with water's natural behavior, not eliminating it.

Flood communication generally falls into three categories:

- → **Observation:** reporting present conditions as they happen
- → **Warning:** using real-time data to mobilize protective actions
- → **Forecasting:** anticipating future conditions before they occur

Downtown Flooding, Congress Avenue (1935)

Images courtesy of The Heritage Society at
Sam Houston Park, Photo Collections

The Evolution of Flood Forecasting

1837

Houston Founded Along the Bayous

Houston develops within a flat, flood-prone coastal landscape shaped by water.

1929 & 1935

Major Floods Reshape Priorities

Devastating floods reveal the need for coordinated regional flood management.

1937

HCFCD Established

Harris County creates a dedicated flood control district to reduce regional flood risk.

1983

Real-Time Monitoring Begins

A countywide gauge network starts tracking rainfall and stream levels in real time.

1984

Floodplain Management Evolves

The focus shifts from controlling water to managing risk and guiding safer development.

2001

From Observation to Forecasting

After Tropical Storm Allison, engineers begin exploring predictive flood modeling.

2002

First Predictive Prototype

A simple forecasting tool demonstrates how live data can provide advance warning.

2006

Flood Simulation Expands

Near-real-time modeling combines sensors, radar rainfall and hydrologic analysis to estimate flooding before it occurs.

2017

Countywide Flood Forecasting

A new system models all 22 Harris County watersheds and projects future flood conditions hours in advance.

Today

Technology Supports Better Decisions

Modern forecasting combines sensors, modeling, radar rainfall, and emerging AI tools—but engineering judgment remains essential.

From Observation to Forecast

Forecasting introduces something different: lead time. The ability to anticipate how, when, and where water will rise gives responders time to prepare before conditions become critical.

In 1983, HCFCD began operating a rainfall and stream gauge network that grew into one of the most comprehensive in the country. For many years, this system functioned primarily as an observation tool, with flood warnings relying on real time readings and expert judgment. It laid the groundwork for broader flood awareness but could not yet provide a view ahead.

Turning Data Into Foresight

Walter P Moore's involvement in flood forecasting in Harris County began in 2001, when our team began envisioning how emerging modeling technologies could extend the value of existing observation systems. The goal was not to replace observation, but to build on it—transforming real-time data into actionable foresight.

Following Tropical Storm Allison, these conversations intensified. The event reinforced a critical reality: even robust flood mitigation infrastructure cannot eliminate all risk. Providing advance warning would be essential for protecting lives and property when water exceeds system capacity.

In 2002, we tested this concept with a private-sector client, developing a simple, site-specific predictive tool using live weather data and upstream water levels. This early prototype demonstrated that even basic forecasting could provide actionable insight and laid the groundwork for broader applications.

In 2006, HCFCD formally partnered with us to develop the Flood Event Modeling Program for the White Oak and Buffalo Bayou watersheds. This system simulated rainfall and runoff in near real time, improving understanding of flood behavior and emergency response.

By 2014, additional capabilities enabled the system to project how quickly water levels would rise and when they would peak, improving both the speed and accuracy of forecasts.

Building on these advances, HCFCD re-engaged our firm in 2017 to develop the Harris County Flood Forecast System. Covering all 22 county watersheds and incorporating rainfall data from multiple sources, the system projects future flood conditions and alerts officials when water is expected to reach critical thresholds or begin to recede.

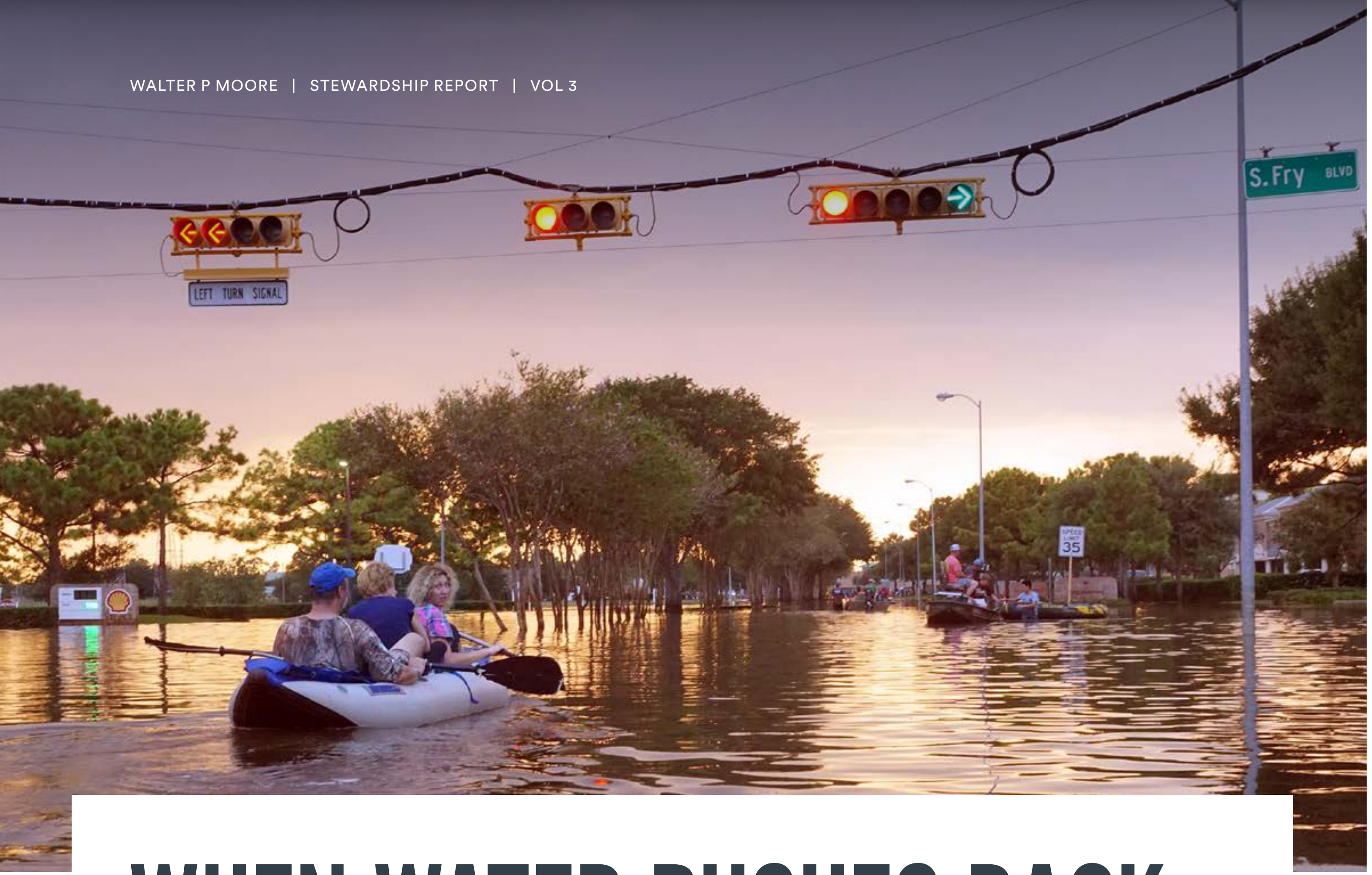

Flooding from Hurricane Harvey (2017)

The principles developed in Harris County have since been adapted for other communities, including the City of Grand Prairie, reinforcing that while forecasting tools can be scaled, effective flood warning must always be tailored to local conditions.

Preparing for Excess Water

Flood forecasting will not prevent flooding—but it shapes outcomes when water inevitably arrives. True resilience emerges from the intersection of technology, engineering judgment, local knowledge, and clear communication.

Water's behavior is natural and unpredictable. Our responsibility as engineers is not to control it, but to steward it. By investing in systems that anticipate excess, communities gain time, clarity, and confidence. In Harris County, flood forecasting has become an integral part of living with water, meeting high water with preparedness, not surprise.



WHEN WATER PUSHES BACK

by Doug Coenen PE, ENV SP and Ray Drexler, PE

FLOODING IS NOT A QUESTION OF IF for many communities, but when. When water exceeds the capacity of rivers, streets, and drainage systems, it tests the assumptions embedded in our buildings and infrastructure. In those moments, outcomes are shaped less by prediction than by preparation.

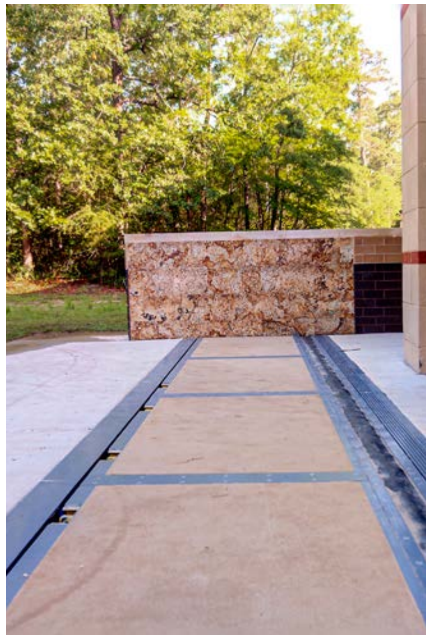
Flood protection exists for these conditions of excess. It is the discipline of designing for water that arrives higher, faster, or longer than expected, and ensuring that systems perform when they are needed most. While flood mitigation seeks to reduce impacts over time, flood protection focuses on what happens during the storm itself, when decisions made years earlier determine whether facilities remain functional or fail.

Designing for Excess Water

Effective flood protection begins with understanding how water behaves during its most extreme moments. That means looking beyond minimum code requirements and focusing on performance during real events.

- → How deep could floodwaters become?
- → How fast might they arrive?
- → Which parts of a facility must remain operational, and which can safely flood or recover quickly?

At Walter P Moore, flood protection strategies are built around risk based design. Our teams evaluate flood depths, flow rate, and durations alongside site constraints, building use, and user tolerance for downtime. Solutions often combine passive systems that activate automatically during events with structural hardening, elevation, or strategic compartmentalization of buildings.



Kingwood High School flood gates protect up to eight feet

> It is the discipline of designing for water that arrives higher, faster, or longer than expected, and ensuring that systems perform when they are needed most.

This approach avoids treating flood protection as a single barrier. Instead, systems are layered. Openings are protected, utilities are isolated, and circulation paths are designed to remain functional during high water. The goal is not to resist water at all costs, but to guide it in ways that protect people, assets, and continuity of use.

Performance During Real Flood Events

The effectiveness of flood protection is measured during the storm, not after it. In Kingwood, Texas, repeated flooding exposed how vulnerable critical facilities can be when water exceeds assumptions baked into older designs. Following significant flood events in 2016, Hurricane Harvey in 2017, and Tropical Storm Imelda in 2019, flood protection for Kingwood High School was reevaluated from the ground up.

The resulting system was designed to protect the campus from floodwater depths of up to eight feet at the site's most exposed edges. Automatic flood gates, flood walls ranging from four to eight feet high, and flood resistant glazing were integrated into the existing building envelope. Passive systems ensure protection even when storms arrive overnight or without warning.

These measures have since been tested during heavy rainfall events, demonstrating how performance based flood protection can allow critical facilities to remain usable, recover faster, and avoid repeated loss.

Shaping Outcomes When Water Arrives

Flood protection is often framed as holding the line against water. In practice, stewardship asks a different question: how can engineering decisions shape safer outcomes when flooding occurs?

Designing for excess water means accepting that flooding will happen and planning accordingly. It means elevating critical functions, protecting openings, and allowing less critical spaces to flood without cascading damage. When paired with forecasting, communication, and emergency planning, flood protection becomes part of a broader stewardship strategy that helps communities live with water across its most extreme conditions.

In regions where too much water defines risk, resilience is achieved not by eliminating exposure, but by designing systems that perform when they are most needed.

ENGINEERING FORESIGHT FOR COASTAL RESILIENCE

by Charles Penland, PE, LEED AP

FLOODING ALONG THE TEXAS COAST is a constant threat shaped by geography, climate, and human occupation. Harris County and the broader Galveston Bay region sit within a naturally vulnerable coastal system, where flat terrain, slow draining soils, and exposure to tropical storms combine to make storm surge a defining risk. The consequences of that risk are magnified by the concentration of people, infrastructure, and industry along the bay.

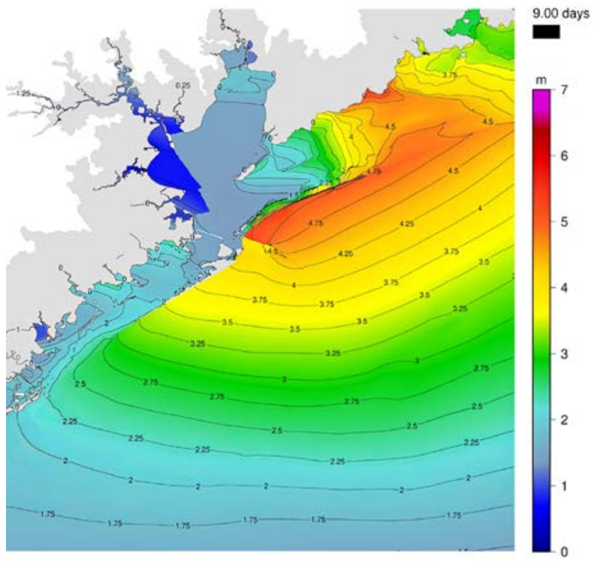
In September 2008, Hurricane Ike made that vulnerability unmistakably clear. While the storm devastated the Texas coast east of Galveston, a small shift in its path could have driven a catastrophic surge into western Galveston Bay. Such an event would have flooded communities, disrupted one of the nation's busiest ports, damaged energy and petrochemical facilities, and contaminated critical waterways. The near miss galvanized regional leaders, researchers, and engineers to confront a shared reality: major surge events are inevitable, and preparation must extend beyond individual projects.

From Measurement to Foresight

Coastal protection has traditionally focused on controlling water at specific sites. Increasingly, stewardship demands a broader perspective—one that anticipates how water moves across regions and how its impacts cascade through economic, environmental, and social systems.

In response to Hurricane Ike, Rice University's Severe Storm Prediction, Education, and Evacuation from Disasters (SSPEED) Center, in collaboration with Walter P Moore, began exploring alternatives that could reduce storm surge risk across Galveston Bay. We contributed civil and structural engineering expertise to evaluate barrier and gate concepts rooted in both performance and feasibility.

Maximum Surface Elevation V5.6 (Coastal Barrier)



At the same time, plans were advancing to modernize the Houston Ship Channel through Project 12, a federally led navigation effort to deepen and widen the channel to accommodate larger vessels. The project involves significant dredging, producing millions of cubic yards of material as a necessary byproduct of the channel improvements.

Rather than treating this material as waste, the SSPEED Center recognized an opportunity. If repurposed strategically, dredged material could form the backbone of a regional surge protection system—transforming an operational requirement into resilient infrastructure.

Turning Necessity Into Protection

From this convergence emerged, the Galveston Bay Park concept. The preferred approach envisions an in bay barrier system formed by linked earthen embankments and gates that allow circulation, navigation, and ecological exchange under normal conditions, while providing surge protection during extreme events. Bridges over the barrier would support maintenance access and public use.

From its inception, Galveston Bay Park was conceived as more than a defensive structure. By imagining the system as a chain of barrier islands rather than a single wall, the project reframed coastal protection as an asset with everyday value. Our team brought in Rogers Partners Architects to help shape a vision where protection, restoration, and public benefit coexist.

Stewardship at the Regional Scale

The engineering framework integrates multiple objectives into one system:

- → **Protection:** An in-bay barrier that reduces storm surge risk to communities, industries, and ecosystems, while also enabling spill containment within the bay.
- → **Restoration:** Regenerative wetlands, oyster reef mitigation, and managed water circulation to improve water quality and habitat health.
- → **Resilience:** Strategic use of dredged material to reduce disposal impacts, support future maintenance dredging, and create long term capacity for adaptation.
- → **Public Value:** Recreation and access features that generate ongoing economic and social returns, helping sustain the system over time.

Every design decision reflects a stewardship mindset: infrastructure meant to operate only in emergencies should also strengthen the environment and community it protects on ordinary days.

Engineering for the Next Surge

Galveston Bay Park demonstrates how engineering decisions can shape outcomes when there is a significant threat. Flooding cannot be prevented outright, but its consequences can be anticipated, mitigated, and managed thoughtfully.

By aligning coastal protection with navigation needs, ecological restoration, and public benefit, this approach moves beyond reaction toward foresight. It reflects a core stewardship principle: water's behavior is natural, but the impacts we experience are defined by our choices.

SOLVING WATER ABUNDANCE PROBLEMS AROUND THE WORLD

by Bret Busse, PE and Andy Yung, PE, CFM, BC.WRE

Temporary wooden bridge in the village of Dumangbe

Improvised boards at the stream crossing

IN THE SMALL VILLAGE OF DUMANGBE, in southern Sierra Leone, West Africa, a temporary wooden bridge provides pedestrian access over the Korgori stream during the dry season. During monsoon rains, however, the structure is frequently washed away, cutting off Dumangbe and surrounding villages from access to critical services such as education, healthcare, and markets—impacting more than 1,000 people.

Floodwaters do not just damage infrastructure; they isolate communities. Unsafe crossings have led to drownings, and during the 2014 Ebola crisis, Dumangbe and nearby villages accounted for 23 of the 31 recorded deaths in the Pujehun District due in part to limited access to medical care.

This is a case of water abundance, where managing excess water is critical to public safety and long-term resilience.

From Need to Engineering Approach

Community leaders, working with an in-country NGO partner, identified the need for a safe, permanent crossing and engaged Engineers Without Borders (EWB). The project was adopted by the Washington Professional Chapter, with Walter P Moore engineers serving as technical partners to evaluate alternatives and advance a community-supported solution into a constructable design.

The challenge was not only technical, but contextual: how to apply rigorous engineering methods in a data-scarce, resource-constrained environment.

Designing with Limited Data

Developing a long-term solution required hydrologic and hydraulic analysis with minimal available data. Terrain information was limited to satellite estimates supplemented by targeted field survey, while channel characteristics were approximated using site observations and photographs.

Working within these constraints, the team applied established methodologies, guided by the Sierra Leone Roads Authority, to estimate a 50-year (2% annual chance) design flow. This type of experience-based assumption is common in data-limited regions and reflects how engineers adapt standard practices to real-world conditions.

This exchange reflects a core aspect of engineering stewardship: balancing technical rigor with community perspective, while clearly communicating risk and uncertainty.

Site assessment at Korgori stream

Evaluating and Selecting the Crossing Solution

Multiple crossing concepts were evaluated, including a traditional bridge. Based on constructability, cost, and local conditions, the team advanced a culvert solution.

The final design consists of a triple 3750 mm x 3750 mm (12 ft x 12 ft) cast-in-place reinforced concrete box culvert, with the roadway embankment elevated approximately 0.6 meters (two feet) above the 50-year flood level to reduce the risk of overtopping and washout during major storm events.

To address erosion associated with increased flow velocities, several stabilization strategies were considered. Due to material availability and constructability constraints, placed riprap was selected as the most practical and adaptable solution.

Work underway on the new crossing

Balancing Engineering and Community Input

During design development, village elders expressed concern that the structure appeared larger than any flood they had experienced. This prompted additional evaluation by the engineering team.

Given the uncertainty inherent in limited data conditions, maintaining conservative design assumptions was critical to long-term performance and public safety. Reducing culvert size or roadway elevation would increase the risk of failure during major storm events.

This exchange reflects a core aspect of engineering stewardship: balancing technical rigor with community perspective, while clearly communicating risk and uncertainty. EWB's approach—listen first, understand local priorities, develop alternatives, and refine solutions collaboratively—was central to the process.

Applying Proven Methods in New Contexts

While the setting is remote, the engineering approach is not. The same hydrologic modeling principles, risk-based design decisions, and erosion control strategies used in highly developed environments were adapted here to fit local conditions, available materials, and construction capabilities.

This ability to translate established engineering practices into resource-constrained settings is essential to addressing global water challenges—particularly where data, funding, and infrastructure are limited.

Toward Reliable Access and Resilience

Following the site assessment and data collection in 2023, the team developed and refined alternatives with community input, completed the design in 2025, and advanced the project into construction in early 2026. The crossing is scheduled for completion ahead of the monsoon season.

Once in place, it will provide reliable, year-round access for more than 1,000 residents, reducing risk during flood events and improving connectivity to essential services.

Stewardship in Practice

Projects like this demonstrate that water stewardship is not defined by geography or scale. Whether in dense urban systems or remote rural communities, the challenge remains the same: understanding how water behaves and designing systems that work with it, not against it.

By applying proven engineering methods in new contexts, we can help communities better manage water in all its forms while building resilience that extends beyond a single project.

LOOKING AHEAD: THE FUTURE OF WATER

by Rucker Simon, PE

The Awty International School

ACROSS THE WORLD, water appears in conditions of scarcity, sufficiency, and excess. Each reveals a different challenge, but all point to the same reality: water's behavior is natural, while its consequences are shaped by how we choose to plan, build, and respond.

The future of water stewardship depends on more than reacting to site-specific problems. It requires recognizing pressures already here, and challenges still ahead in ways that are sustainable and resilient. It also requires education, transparency, and collaboration among engineers, policymakers, developers, utility providers, and the communities these systems serve.

There is a long list of initiatives one could pursue in the name of "future water stewardship." For this report, we chose to focus on four that sit at the intersection of high impact, real-world applicability, and where we can help drive meaningful progress: Measure, Reduce, Educate, and Advocate.

Measure More

Stewardship starts with measurement that reflects the full picture, not just the number at a meter. Operational water use is only part of the story. Water is embedded in construction materials, energy generation, hardware, and site preparation, and those impacts will increasingly shape what water responsibility looks like at the project and regional scale.

Data centers make this especially visible. As artificial intelligence and high-intensity computing grow, so do the water demands tied to building and operating the infrastructure that supports them. Cooling strategies carry tradeoffs in water use, energy demand, cost, and performance. Climate, seasonality, and local availability influence what is feasible and what is responsible.

For civil engineers, stewardship begins before a facility is built, identifying reuse opportunities through water-balance thinking, and context-sensitive siting that looks past water conservation measures to water positivity that can support surrounding infrastructure, nearby residents, and long-term community resilience.

Reduce Waste

In the near term, the most actionable progress comes from integrating existing practices, technologies, and strategies to better align demand with available resources. That means moving beyond isolated fixes and treating water management, water quality, reuse, and runoff as parts of an interconnected cycle that spans natural and built systems.

This shift is urgent because water challenges are not isolated. In some places, aquifers are under pressure and freshwater is limited. In others, larger rainfall events create more runoff, increased flood risk, and heavier pollutant loads. Scarcity and excess can occur simultaneously, shaped by geography, infrastructure, and growth patterns. Responding effectively requires evaluating water supply, storage, conveyance, treatment, and demand as a system over time, and defining "success" in context so project-level gains contribute meaningfully to the needs of a region, watershed, or basin.

Educate Through Design

A critical part of the future is making water systems visible and understandable, not hidden and abstract. Translating technical solutions into forms that are meaningful to the public reduces uncertainty, builds trust, and supports informed decision-making.

That is why education-ready projects matter. At The Awty International School in Houston, stormwater requirements and resiliency expectations increased significantly following Hurricane Harvey. Rather than treating those requirements as something purely utilitarian to hide underground, the project team leveraged the opportunity to put environmental systems on display. The campus design includes cisterns and rain gardens that capture, filter, and temporarily store rainwater, while also creating visible learning environments for students.

By making the systems visible and accessible, these spaces gives students an opportunity to learn about complex environmental systems, planting seeds for future engineers and designers who will inherit the next chapter of water stewardship.

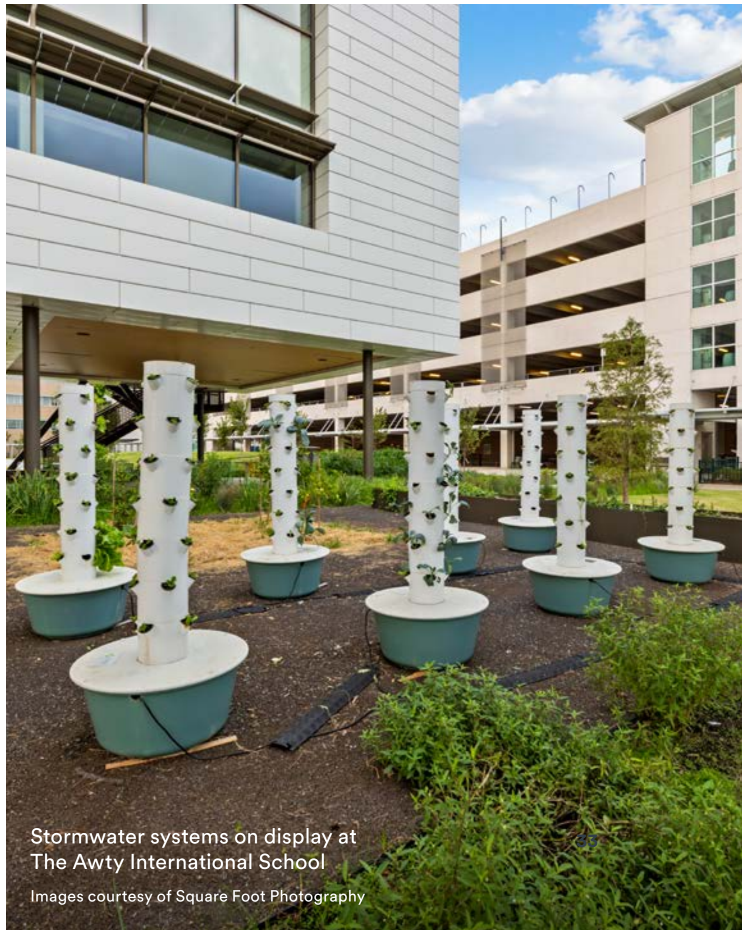
Advocate for the Future

Long-term stewardship also requires shifting expectations, not just improving individual projects. Water stewardship cannot rely on incentive programs or isolated strategies alone. It must become part of baseline practice through codes, standards, planning, and development policy. Moving from reactive to proactive stewardship means establishing climate-responsive requirements for storage, reuse, adaptability, and long-term performance, so resilient water systems become standard practice rather than project-specific alternatives.

It also means designing for projected conditions, not only historical ones. Many practices still rely on recurrence-interval storms derived from past rainfall records, even as climate variability challenges those assumptions. The upcoming Atlas 15 rainfall projections reflects how storms are expected to change as temperatures rise, and points toward a future in which design storms grow more intense, and flood risk increases. Responding does not simply mean building larger pipes. It means creating more storage, greater flexibility, and better alignment between intermittent water sources and reliable demand over the life of infrastructure.

The future of water stewardship will depend on ingenuity at every scale, from individual sites to regional systems, and from today's infrastructure decisions to tomorrow's policy frameworks. It will be shaped by choices that can be implemented now, strengthened over time, and carried forward through real projects with clear community value.

▸ Watch the Awty project in action



Stormwater systems on display at The Awty International School

Images courtesy of Square Foot Photography

CONTRIBUTORS

Our contributors bring together expertise across water systems, infrastructure design, and the built environment to shape this Stewardship Report. Through their work, they explore how thoughtful engineering, informed decision-making, and collaboration can improve how water is understood, managed, and integrated into the communities we serve. We invite you to continue the conversation through this resource and by connecting with our team.

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> “As design professionals, we influence how water is managed in the built environment. That responsibility requires us to measure performance, reduce demand, communicate clearly, and plan for changing conditions. At Walter P Moore, we have made this commitment and are focused on translating stewardship into action.
>
> —**Dilip Choudhuri**, PE
> President & CEO
> Walter P Moore

Stewardship begins within.
Change requires action.

MEASURE

We will continue to evaluate how water moves through our projects—across sources, use, reuse, and discharge—to assess performance, identify opportunities for improvement, and inform more responsible design decisions.

REDUCE

We will advance design solutions that reduce water demand and improve efficiency by leveraging experience and integrated strategies that balance performance, resilience, and resource use.

EDUCATE

We will expand how we help our firm, clients, and partners understand how water systems connect to the natural water cycle, supporting clearer decision-making through communication, shared knowledge, and integrated design thinking.

ADVOCATE

As industry leaders, we will further advocate for water stewardship to be embedded in planning, policy, and design standards, advancing forward-looking, data-informed approaches that respond to changing conditions.

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